PURCHASING

NOVEMBER, 1954

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FROM LITTLE "PINS," BIG SAVINGS GROW

ore than 2,000 "pins" blanket the map above. They represent an equal number of Texaco Distributing Plants, ready to serve you throughout all 48 States. Industry everywhere obtains through these plants the famous Texaco Lubricants and Texaco Lubrication Engineering Service that play so vital a role in keeping plants running efficiently and unit costs low.

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TEXACO Lubricants, Fuels and Lubrication Engineering Service

TUNE IN . . . TEXACO STAR THEATER starring DONALD O'CONNOR or JIMMY DURANT on television . . . Saturday nights, NBC.

For More Information Circle No. 201 on Inquiry Card-Page 17

NEW Century

Performance-Rated°

INTEGRAL H.P. MOTORS



Now available in 1...1½...2 H.P. sizes— NEMA frames 182 and 184.

Improved Motors 1...1½...2 H. NEMA frames 1...

to match your needs

SMALLER - LIGHTER

More uniform silicon-laminated steel; thinner, tougher "Mylar" slot insulation — just two of the many technical developments that help make these new Century Performance Rated Motors so much smaller and lighter.

BETTER PROTECTION

New concepts of internal motor ventilation permit end bracket and frame design that gives far better protection from falling liquids and solids...still maintain 40°C. temperature rise.

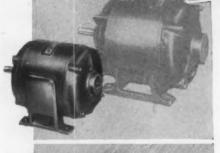
MORE FLEXIBLE MOUNTING

You can even have cushion mounting with these new Century Integral H.P. Motors — your choice of sleeve or ball bearings. Ball bearing motors mount vertically, upside down, in any position. End brackets can be rotated for floor, ceiling or side wall mounting.

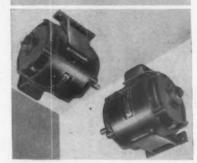
EVEN MORE DEPENDABILITY

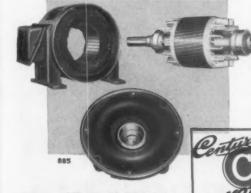
Improved plastic impregnating varnish and plastic insulated magnet wire provide unusual resistance to abrasion, moisture and heat. These new materials possess far better dielectric qualities. Die cast aluminum rotors are individually, dynamically balanced to assure freedom from vibration.

Specify CENTURY Performance Rated motors for your equipment. Call a Century District Sales Office or your nearest Century Authorized Distributor.









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C.

CENTURY ELECTRIC COMPANY . 1806 Pine Street . St. Louis 3, Missouri

PURCHASING published monthly, by PEEAYE, INC., subsidiary CONOVER-MAST PUBLICATIONS, INC., Publication Office, Orange, Conn. Editorial and Executive Offices, 205 E. 42nd St., New York 17, N. Y. Entered as second class matter August 9, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription rates: United States, U. S. Possessions and Canada, 34 per year; elsewhere \$10 per year. Single copies 50c. November, 1954. Volume XXXVII, No. 5.



Photo courtesy J. Robert Bazley, Inc., Pottsville, Pa

Hose gulps a lake to rescue a coal mine

A typical example of B. F. Goodrich improvement in rubber

Beneath this lake are coal mines that can be worked again if they can be reached. Drop some pipe in, and pump the 12-billion-gallon lake dry? The water is loaded with acid that eats steel. Use rubber hose? The water is full of silt and stones that tear rubber to shreds.

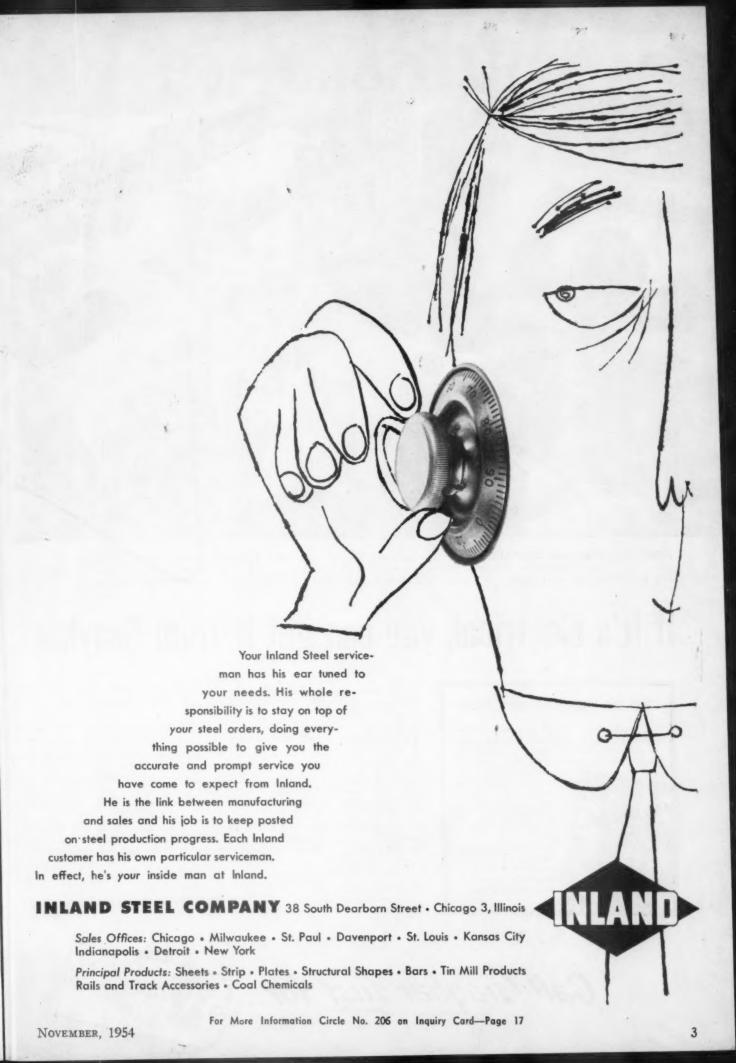
Ordinary rubber, that is. Luckily, the engineer in charge knew about a special B. F. Goodrich rubber developed for chute linings to stand the grinding of gravel and sand. This rubber is soft enough to give under the beating it gets, yet so tough that it's even used in some places to carry broken glass.

B. F. Goodrich hose, lined with this special rubber, has been on this job 18 months and is still good as new. It gulps 14 million gallons of water-acid-mudsmall stones a day, yet engineers predict it will last the 3 years needed to finish one of the biggest draining jobs in history.

Reducing costs for business is our business. And the way we do it is by constantly improving all kinds of rubber products to make them last longer, stand harder use.

That's why the original cost of a rubber product doesn't tell the whole story. It stands to reason that B. F. Goodrich V belts that outlast others 2 and even 3 times, and conveyor belts that often last 10 times longer, will cost you far less over a period of years. To find out about recent money-saving improvements made by B. F. Goodrich and what they can do for you, call your BFG distributor or write The B. F. Goodrich Company, Department M-282, Akron 18, Ohio.

B.F. Goodrich INDUSTRIAL PRODUCTS DIVISION



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MORE THAN 100,000 ELECTRICAL ITEMS are promptly available from nearby Graybar — complete wiring systems for any industrial need . . . apparatus for power distribution

... indoor and outdoor lighting units and lamps ... ventilating, signaling, and "intercom" equipment... plus cable, conduit, wiring devices, and tools needed to install them.

If it's electrical, you can get it from Graybar

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This fact-filled booklet "24 Time- and Moneysaving Ideas" gives actual case-history proof of the statements made at right...demonstrates conclusively the savings possible through im-



For more information relative to any electrical installation, however, call your nearby Graybar Representative - he'll be happy to serve you.

And, because you want efficient service, here are four more reasons why your next order for electrical equipment and supplies should read "via Graybar."

- 1. Graybar distributes the products of over 600 of the nation's leading manufacturers - well known lines of proved design and construction.
- 2. You or your electrical contractor can get prices and specifications on all these items through your local Graybar office or warehouse.
- 3. Local stocks of standard electrical items and fast delivery on nonstock lines assure on-schedule deliveries for both construction and every day maintenance needs . . . in emergencies, shut-down time can be held
- 4. Graybar Specialists in all of the major electrical fields are always available for consultation on out-of-the-ordinary projects. You can rely on them for careful analysis of your requirements and complete impartiality in product recommendations.

Make it a point always to call Graybar first — a single source... a single responsibility will save you time and money.

Graybar Electric Co., Inc. Executive Offices: Graybar Building, 420 Lexington Ave., New York 17, N. Y.

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PURCHASING

The National Magazine of Industrial Furchasing

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This fire was finally put out—but too late to avoid heavy loss of property.

Don't be too late! There is a moment, in every fire, when a little water will do what an engine brigade may not be able to do ten minutes later. Practically every fire can be kept from turning into a disaster, by stopping it at the start. The sure way of doing that is the automatic way—with a Grinnell Automatic Fire Protection System.

Grinnell Sprinklers stop fire at its source, wherever and whenever it strikes, night or day, with automatic certainty. The experience of 76 years proves this. Now, with Grinnell Automatic Spray Sprinklers, you get even greater protection against fire. Less water puts out more fire. There is a Grinnell Fire Protection System for every fire hazard, and for every type of location.

Fire strikes without warning, and it may be later than you think. Get in touch with your Grinnell engineer, and let him advise you on the particular Grinnell System to protect your property. Grinnell Company, Inc., 273 West Exchange Street, Providence, Rhode Island.

Here is a partial list of the different fire protection systems which Grinnell can engineer to fit your particular need . . .

- Standard Wet-Pipe Sprinkler
 System. Where temperatures remain above freezing.
- Standard Dry-Pipe Sprinkler
 System. Where temperatures may go below freezing.
- Multitrol System. For faster application of water in extra hazardous areas.
- Textile Opener Room System. For flash fires in opened cotton bales.
- Mulsifyre System. For fires in heavy as well as in medium oils.
- ProtectoSpray System. For fires in light and medium oils many special hazards.
- ProtectoFoam System. For fires in gasoline and other highly flammable liquids.
- C-O-Two System. For highly flammable liquids in enclosed spaces.



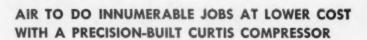
GRINNELL PROTECTION AGAINST EVERY FIRE HAZARD

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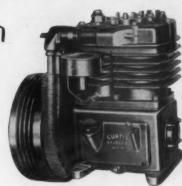
Curtis

COMPRESSORS, HOISTS and CYLINDERS

Cut Costs
While Speeding Production



- Timken roller main bearings equipped—easy external adjustment.
- Self-oiling—pressure lubricated rod bearings and piston pins.
- Air-cooled—no danger of freeze-ups.
- Tank Mounted Compressors 1/4 H.P. through 15 H.P. (up to 78 cu. ft. displacement per minute) Simple Compressors 1/4 H.P. through 50 H.P. (up to 300 cu. ft. displacement per minute).







LIFT OR LOWER LOADS QUICKLY WITH A CURTIS "ALL STEEL" AIR HOIST

Cut costs with these time-saving, work-saving air-powered hoists.



PUSH IT, PULL IT, LIFT IT, LOWER IT WITH A CURTIS "ALL STEEL" AIR CYLINDER

- Curtis Bracketed Air Cylinders can work in any position from horizontal to vertical.
- Delicate control of lifting and lowering speeds.
- Cylinders ground and polished on inside diameter.
- They bring new time-saving ease where lifting, lowering, pulling or pushing is required.
- · Valve is disc type. Returns automatically to neutral position when operating chains are released ... and effectively hold the load.

Get all the facts about cost-cutting Curtis equipment!



TENTES PNEUMATIC MACHINERY DIVISION

of Curtis Manufacturing Company 1908 Kienlen Avenue . St. Louis 20, Mo.

For More Information Circle No. 209 on Inquiry Card-Page 17

NG

Users praise Phillips Cross-Recessed-Head Screws



THIS BLOWER UNIT ON A BRYANT MODEL 315 OIL-FIRED FURNACE is powered by a ½ h.p. electric motor operating at 1750 r.p.m. "Were the screws that hold this assembly together to loosen," says John Zonza, foreman of the general assembly department, "the vibration would destroy the unit. I do not know of a single instance where the Phillips screws have loosened during operation." John Craft here completes assembly of unit with Phillips screws.



CLARK CONTROLLER COMPANY uses Phillips screws in the manufacture of many of its highly specialized electrical control units. Inasmuch as the units are usually prominently located, neatness and compactness are of prime importance. "Certainly no one doubts that Phillips screws make a neater, more attractive appearance," states Carl W. Graber, Manager of Device Manufacturing. George Strickler, chief inspector, here gives Phillips screws a final check.



PERFORMANCE AND CONSTRUCTION STANDARDS FOR THE GRAY AUDOGRAPH necessitate the use of Phillips screws. "The better efficiency of these screws," states Al Jacobs, Chief Estimating Engineer, "results in speeded-up production that makes their selection automatic." Virtually no cuts, no accidents, no "head-splitting," no "burring," plus the use of power drivers are among Phillips screw advantages. Adeline Donahue here gives final electrical test to completed assembly.

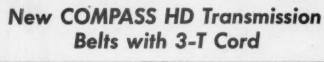


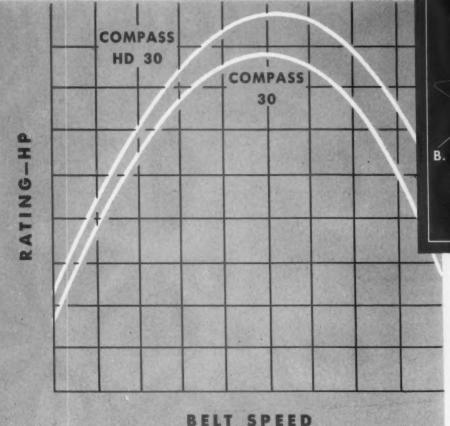
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OF TODAY...
AND OF THE FUTURE

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up to 26% THINNER-up to 60% STRONGER





B. Multi-strand cords of chemically produced 3.T filaments laid in neutral plane carry the load. Cords on opposite sides of belt axis are twisted in opposite directions to insure true running

HERE'S an example of the difference in COMPASS HD versus regular COMPASS CORD Transmission Belts! The upper curve depicts the horsepower ratings for the new COMPASS HD 30 belt. The lower curve represents those of the standard COMPASS 30 belt. You get all that added horsepower capacity at no added cost and in a thinner, more flexible belt.

In 1929 the G.T.M.—Goodyear Technical Man—introduced the first major improvement in flat transmission belt design—the COMPASS Endless Cord Belt. Low stretch, longer flex life and higher horsepower ratings with no danger of splice failures or ply separations were, and still are, the chief advantages of this much superior belt.

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Scovill

Today the G.T.M. takes another great step forward with a further refinement of the endless-rope-cord principle—the use of Triple-Tempered (3-T) Cord in the new COMPASS HD belts. 3-T Cord is synthetic cord from which the surplus stretch has been removed by an exclusive triple-action tempering process involving the application of carefully controlled Tension at an exact Temperature for a specific period of Time.

Triple Tempering sets the cord at the point of maximum resiliency and strength — only the surplus stretch is removed — flexibility is not hindered. The end result is a thinner, stronger belt having less stretch for more efficient power transmission, longer wear

and better flex life on the smallest pulleys or reverse bends. And you pay no more for a COMPASS HD belt than for its cotton cord predecessor. For details see the G.T.M., your Goodyear Distributor or write Goodyear, Industrial Products Division, Akron 16, Ohio.

your goodyear distributor can quickly supply you with Hose, Flat Belts, V-Belts, Packing or Rolls. Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."

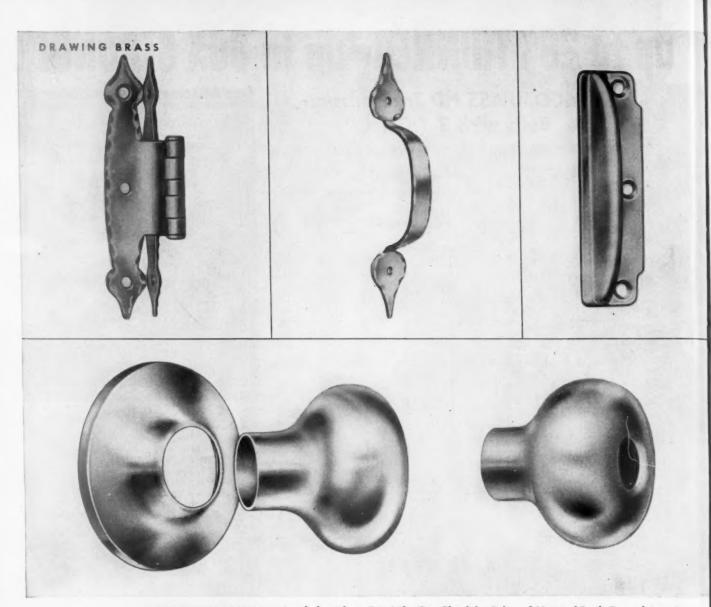
GOODFYEAR

THE GREATEST NAME IN RUBBER

Compase-T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

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THESE HARDWARE ITEMS are made by Adams Rite Mfg. Co., Glendale, Cal., and National Lock Co. and American Cabinet Hardware Co., both of Rockford, Ill. They are typical of the stamped, drawn and pressed products

Formbrite—Anaconda's new drawing brass—polishes up to

Superfine grain makes Formbrite harder, stronger, springier and more scratch-resistant





75X magnification of Ordinary drawing brass. superfine-grain Formbrite.

75X magnification of

Here is what enthusiastic manufacturers of stamped and drawn brass products say about Formbrite:

"... cuts our polishing costs up to 50% . . . eliminates some finishing operations entirely . . . gives amazingly sharp die impressions...resists scratching in handling . . . plates beautifully . . . gives a more lustrous finish . . .

Yet Formbrite* costs no more than the ordinary drawing brasses these manufacturers had been using. In fact, Formbrite very often saves more than the metal itself costs.

Why Formbrite is easier to use

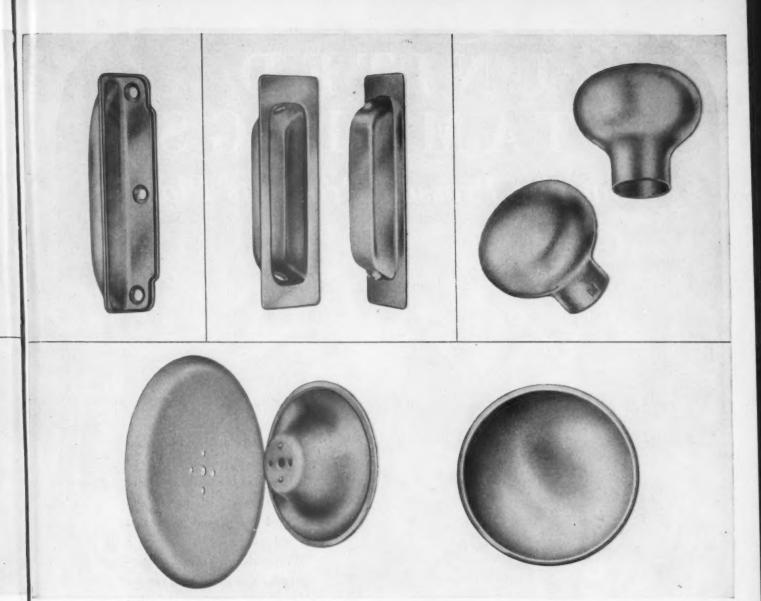
Note Formbrite's superfine grain structure. Compare it with that of

ordinary drawing brass. Special methods of rolling and annealing produce a grain structure so fine that often a simple color buff will bring it to a bright, lustrous finish.

Formbrite is also harder, stiffer, springier and more scratch-resistant . . . yet it is surprisingly ductile, readily stamped, formed, drawn and embossed.

Typical case

The Adams Rite Mfg. Co. makes the flush pull shown in the upper right



successfully made of Formbrite. Others include: lipstick holders, fishing lures, automobile hubcaps, gage cases, trophy nameplates, pen caps, etc. (Doorknob parts in lower left illustration have been chromium plated.)

50% faster...costs no more than ordinary drawing brass

illustration above. For this and many other building hardware items, they use Formbrite. They report:

"Formbrite increases surface hardness and rigidity of the part...eliminates several polishing operations and reduces over-all costs. Our flush pull definitely has been improved in quality."

Free sample

Formbrite is available in sheet, strip and coils—in all commercial widths and gages. Millions of pounds of this superior drawing brass have been made, sold and satisfactorily fabricated.

Want more proof? Mail the coupon and we'll send you a sample of Formbrite. Try it in your polishing room. See for yourself how quickly and easily Formbrite polishes.

5488

Formbrite

FINE-GRAIN DRAWING BRASS
AN ANACONDA® PRODUCT
MADE BY THE AMERICAN BRASS COMPANY

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UNITED STAMPINGS

from our Pressed Products Plant

In addition to making vast quantities of stampings in the light and medium range, we produce some of the finest machined, tapped and hardened and ground product in the midwest.

With all elements of manufacturing under one control we can assure you of complete satisfaction to any of your requirements.

-when you think of fasteners think of United

SCREWS · NUTS · WASHERS
CLUTCH HEAD SCREWS
STAMPINGS

United Screw and Bolt Corporation

Chicago 8

Cleveland 2

NewYork 7



November 1, 1954

BUSINESS MOVING SIDEWAYS There is little indication that a business change is in the making now or in the immediate future.

Movements have been consistently sideways, and there's nothing in sight that points in a new direction. The first three quarters of this year produced few surprises, and the final quarter will not alter the picture.

What is forecast is the usual bulge during the Christmas

What is forecast is the usual bulge during the Christmas holidays, and then a return to what may well be a pattern almost identical with 1954.

STILL LIQUIDATING INVENTORY

End of July 1953, the total value of trade and manufacturing inventory was \$81,116,000. In July of this year, the figure was \$78,362,000. This means that there has been almost a \$3 billion liquidation of inventory.

There are two reactions from this startling comparison.
One is that the process of liquidation cannot long continue; the other, that the 1953 level of inventory must have been considerably beyond what was justified.

Fact is that the accumulations of inventory are not melting fast. There has been no evidence that the process of liquidation has created a problem of supply.

PRODUCTION VOLUME HIGH Level of production has continued high-a second best year. In some fields, specifically construction, it has been a record year.

Some observers, notably those with a political bias, either for or against the Administration, are looking for a sharp swing.

These observers have no use for a flat line. To suit them, the economy must be heading either up or down. Nothing like this appears in prospect.

From all present indications, no change—or not much change—is in the offing. The construction industry, which has been booming, will continue to do so. The new highway program will set the pace and compensate for a dropping off in industrial construction. No major change in automotive production volume is expected.

How long the present pace will carry over is pure speculation. There is general agreement that at some period ahead, a very sharp expansion in the economy is assured. Those who are willing to speculate on timing feel that the upturn is



When it comes to equipment, you can't fool maintenance men. They know what stands the gaff—and what doesn't. They also know a lot of their work is due to faulty selection of equipment—mistakes in judgment of quality, mainly.

In buying valves, such mistakes usually happen when someone buys on price alone, or because "all valves look alike." In either case, today's penalty is excessive maintenance at the highest labor rates in history. And where valve trouble causes production loss, it, too, was never costlier.

Standardizing on Crane valves eliminates a lot of mistakes, and it's the thriftiest habit in piping equipment buying. Better Crane quality and bigger selection assure it.

Crane Co., General Offices: 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers Serving All Industrial Areas.



CRANE

VALVES . FITTINGS . PIPE . PLUMBING . HEATING

more in the nature of several years off-rather than a period of months.

* * *

PLATEAU EXPECTED

All during the postwar period, it has been the forecast that business would stabilize at a high plateau. That, in effect, has been the goal. When inflation was a problem, the previous Administration sought to stem inflation and achieve a plateau.

Objectives were to adjust prices—to bring farm prices into line—bring meat prices to a level where meat would be generally available—to take the speculative element out of commodities prices—to make materials prices competitive.

Now that the plateau has been with us for some time, there is grumbling that a second best year is not good enough—that the cycle of higher wages and higher prices, if moderate, was not a bad thing.

PRICES

Wholesale price index has remained remarkably stable, and there is no indication that this will change.

Significantly, the greatest stability has been in the field of construction material prices, where it would appear that the record levels of construction activity might have put great pressure on prices. With the exception of cement, where the requirements were unusually high due to the unprecedented demand, there has been little movement in construction materials prices.

Normally, during the winter period, construction materials prices tend to ease off, and there may be a seasonal drop, but this will not be important.

NO END TO CHEMICAL DEVELOP-MENTS

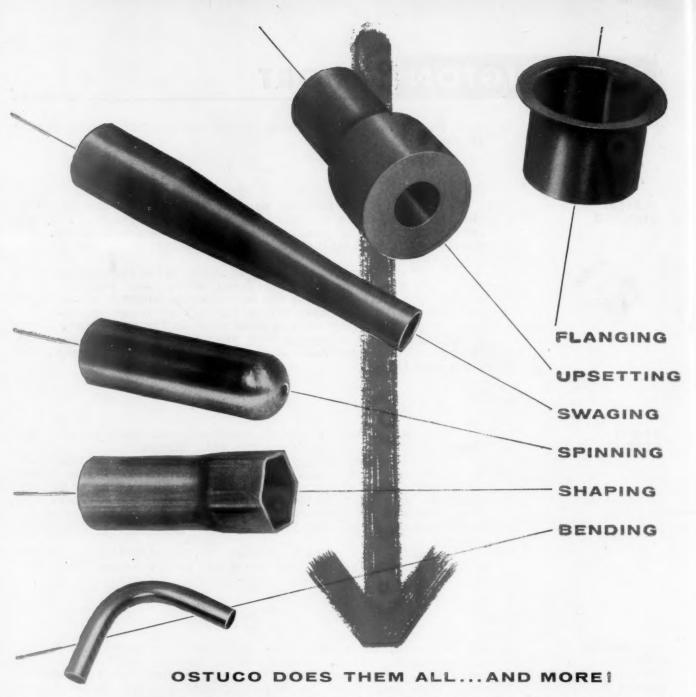
Improvements in technology have been a controlling factor in chemicals prices. Production of industrial alcohol from petroleum, development of synthetic glycerine, use of advanced production techniques in output of anti-biotics merely highlight some of the trends in chemicals that have brought price levels down.

In the case of fats and oils—soybean, cottonseed—the drop in price has been due to world over-production.

DIM ECHO OF DEFENSE With the immediate demand for military supplies slackened, the military planners are seeking to keep facilities in standby readiness.

There is a plan to maintain the mobilization base, and to keep important suppliers, even though they are no longer working on important military contracts, close to the military

Currently, the Office of Defense Mobilization has directed the Department of Defense to select facilities which are capable of producing critically important military items. Thinking is that if an emergency develops, production can be started quickly merely by placing procurement orders. These facilities are to be kept informed on what is expected of them through the placement of so-called ghost or phantom orders.



OSTUCO carbon or alloy steel tubing is manufactured, fabricated and forged to your exact specifications . . . all under one roof. If you want to know more about the advantages of a "single source" where one purchase order takes care of all details, send for our latest catalog, "OSTUCO Tubing." Better still, send us your blueprints for prompt quotation.

OSTUCO TUBING

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of Copperweld Steel Company • SHELBY, OHIO
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You will want additional information about the equipment, materials, services or methods described or advertised in this issue of PURCHASING.

As a special service, our Reader Service Department will gladly and promptly arrange to have manufacturer's literature regarding any item in this issue sent directly to you.

Two cards are provided—one for you, and one for the individual to whom you pass your copy of PURCHASING:

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READER SERVICE is a monthly feature of PURCHASING Magazine designed to help the reader get all the information needed with the minimum of time and effort.



NEW INFORMATION FOR YOUR

Catalog Files



Air Gages For Industrial Application

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A profusely illustrated 30-page catalog deals with a line of column type air gages, their amplifications and scales. It gives full lists of standard sizes and types of air spindles and air snaps.

The Sheffield Corp.

Circle No. 1 on Inquiry Card-Page 17

Alloys Have Excellent Bearing Properties

The "600" series, a group of lightweight, high strength copper-zinc base alloys, are described in a 24-page illustrated catalog. Available in six grades, they have excellent bearing properties.

Mueller Brass Co.

Circle No. 2 on Inquiry Card-Page 17

Alloys For Corrosion-Resistant Castings

Thirteen data sheets, bound in a file folder, cover the properties of all the more popular grades of alloys used for corrosion resistant (stainless steel) castings. Properties of each are listed.

Alloy Casting Institute

Circle No. 3 on Inquiry Card-Page 17

Chart Gives New Data on Wrought Aluminum

A handy wall chart shows the new designation system for wrought aluminum and wrought aluminum alloys. A conversion guide indicates old and new designations in easy-to-read bold type.

Kaiser Aluminum & Chemical Sales, Inc.

Circle No. 4 on Inquiry Card-Page 17

40,000 Different Clamps Listed

Engineering manual No. 201G covers a complete line of 40,000 types and sizes of bare metal and cushioned or insulated line support clamps, wire harness clamps and multiple support clamps.

Thomas Associates

Circle No. 5 on Inquiry Card—Page 17

Handle Handbook Covers Standards, Specials

Full-size illustrations of 73 different styles and types of standard handles and clips are shown in a 20-page handbook. It also discusses special handles and shows how buying standard types saves.

E. H. Tichener & Co.

Circle No. 6 on Inquiry Card-Page 17

Connectors Catalog Features Graphic Index

Electrical distribution and service connectors form the subject of the 22-page bulletin No. 71. It has a graphic index, which shows the complete range of connectors from pole to service entrance.

The Thomas & Betts Co.

Circle No. 7 on Inquiry Card-Page 17

Products That Fight Industrial Wear

A complete, 2-color, 48-page catalog shows industrial parts produced by American Brake Shoe. It details physical properties. There are sections on castings, bearing materials, sintered metals, etc.

The American Brake Shoe Co.

Circle No. 8 on Inquiry Card-Page 17

Vacuum Metallizing Cuts Finishing Costs

The advantages of vacuum metallizing, which consists of depositing a thin coating of metal by evaporating and condensation under high vacuum is described in Cat. No. 780. It cuts out buffs.

F, J. Stokes Machine Co.

Circle No. 9 on Inquiry Card-Page 17

Chemicals For Industrial Use

A catalog includes complete information on the properties and applications of such chemical groups as boron, sodium, potassium, lithium and bromine. Highlighted are lithium chemicals and organoborons,

American Potash & Chemical Corp.

Circle No. 10 on Inquiry Card-Page 17

Materials Handling Line Described

Portable, battery-operated, hydraulic worklifters in a variety of designs for special purposes are treated in bulletin No. 54. They have 1000 lb capacity with 80" lift. Also discussed is a shoplifter line.

Economy Engineering Co.

Circle No. 11 on Inquiry Card-Page 17

Light Structurals Have Many Uses

A 20-page booklet describes the uses of "Junior Beams," light structurals adapted to floor and roof design in buildings, and other uses such as truck and trailer frames. Specifications are included.

Jones & Laughlin Steel Corp.

Circle No. 12 on Inquiry Card-Page 17

Braided Packings Called Superior

A new folder, bulletin A-131, discusses braided rod and shaft packings. It details construction features of lattice braid and describes available materials, sizes and forms. Uses are given.

The Garlock Packing Co.

Circle No. 13 on Inquiry Card-Page 17

Where Aluminum Extrusions Can Help You

A study of aluminum extrusions comprises the text of a 36-page, 8½ x 11" two-color book. It points out uses of aluminum extrusions in new and old design.

Harvey Aluminum

Circle No. 14 on Inquiry Card-Page 17

Cutting Steel Boosts Output 72%

Ledloy, claimed to be the fastest cutting steel, is described in 8-page bulletin No. 11-1. Composition and mechanical properties are supplied. Output is said to be increased 72%.

Joseph T. Ryerson & Son, Inc.

Circle No. 15 on Inquiry Card-Page 17

Foamable Plastic Has Wide Applications

A new foamable polystyrene, an advance in the field of expanded plastics, is described in a 24-page booklet, C-4-204. Its applications are outlined such as in thermal insulation or packaging.

Koppers Co., Inc., Chemical Div.

Circle No. 16 on Inquiry Card-Page 17

Power Transmission Equipment Described

Equipment and component parts used in power transmission form the text of a 386-page pocket-size booklet. Described with illustrations are gears, sprockets, universal joints, bearings, etc.

Boston Gear Works

Circle No. 17 on Inquiry Card-Page 17

How Metal Finishing Problems Are Solved

A 16-page bulletin summarizes a series of reports on laboratory verified techniques used in solving metal finishing problems. It deals with testing buffing compositions, and recommends which to use.

Frederic B. Stevens, Inc.

Circle No. 18 on Inquiry Card-Page 17

Precision Castings by Frozen Mercury Process

Complete story of the use and advantages of the important new frozen mercury process for producing larger and more complex precision castings is given in illustrated booklet.

Mercast Corp.

Circle No. 19 on Inquiry Card-Page 17

Pressure Recorder Selection Guide

Graphically described in bulletin 6-10, is a line of pressure measuring elements with greater operating power and improved accuracy. An application chart shows how to select unit.

The Foxboro Co.

Circle No. 20 on Inquiry Card-Page 17

Protect Against Industrial Disasters

"Disaster," booklet No. 5004-4, describes equipment necessary for rescue and recovery programs in case of fires, tornadoes, explosions, or other emergencies. Needs of the rescue team, engineering team, and medical team are outlined.

Mine Safety Appliance Co.

Circle No. 21 on Inquiry Card-Page 17

Guide To Selecting Grinding Wheels

Condensed catalog, No. 1052, details the most widely used grinding wheels carried in stock. The illustrated booklet supplies net prices and gives information on grinding wheel selection.

Norton Co.

Circle No. 22 on Inquiry Card-Page 17

Industrial Products of Rubber, Plastics

A colorful, 16-page brochure deals with molded and extruded rubber; extruded plastics; rubber-to-metal bonded parts; vibration control units; and plastics-reinforced fiber glass parts.

The General Tire & Rubber Co., Industrial Products Div.

Circle No. 23 on Inquiry Card-Page 17

Wire Stitching Cuts Packaging Costs

Twenty-four pages of information on how wire stitching makes better corrugated and solid fiber boxes at lower cost comprise bulletin AD 131. Machines and accessories used are illustrated and described.

Acme Steel Co.

Circle No. 24 on Inquiry Card-Page 17

Complete Die Casting Service Described

One of the highlights of an informative die casting brochure is a handy reference chart on the composition of zinc and aluminum alloys for die casting. Included also is a specific gravity chart.

National Die Casting Co.

Circle No. 25 on Inquiry Card-Page 17

Circle Card Opposite Page 17
to Obtain These Catalogs
Additional Catalogs on Page 20

this simple idea
cuts V-Belt costs

- as a V-Belt bends, feel its sides change shape!

Pick up any V-Belt that has straight sides (Fig. 1) and bend it as if it were going around a pulley. At the same time, grip its sides with your fingers! You will feel the sides bulge out as in Fig. 1-A. Clearly, the bulging belt is forced to press unevenly against the V-pulley—and this concentrates wear at the points shown by arrows (Fig. 1-A).





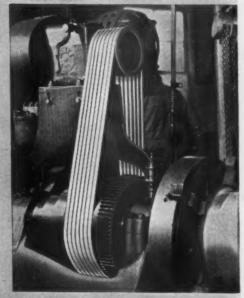
Now bend the belt with CONCAVE SIDES

.. the GATES VULCO ROPE (Fig. 2)

Instead of bulging, the precisely engineered CONCAVE SIDES merely fill out and become perfectly straight. This belt, when bent, precisely fits its sheave groove (Fig. 2-A). The sides press evenly against the V-pulley. Therefore, wear is distributed uniformly across the full width of the Gates Vulco Rope—and this means longer belt life and lower belt costs for you!







Typical Gates Vulco Rope Drive—the Gates V-belts are built with Concave Sides to insure longer belt wear.

When you buy V-belts, be sure to get the V-belt with the CONCAVE SIDES — the Gates Vulce Rope!

THE GATES RUBBER COMPANY
DENVER, U.S.A.
CG-8411



Gates Engineering Offices and Jobber Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

Dressers and Cutters For Metalworking

A comprehensive catalog covers a complete line of dressers and cutters used in most metal working plants. Full specifications are supplied as well as of a variety of parts: pins, screws, etc.

The Desmond-Stephan Mfg. Co.

Circle No. 26 on Inquiry Card-Page 17

High Speed Drills Do Tough Jobs

A line of high speed utility drills is described in folder. They are designed for tough portable body and sheet metal drilling jobs. They are available in fractional sizes: 3/64" - ½" diam.

Chicago Latrobe

Circle No. 27 on Inquiry Card-Page 17

Chain Drives For High Speed, Heavy Duty

Expanded data on capacity ratings of high speed, heavy duty chain drives are available in a profusely illustrated catalog, No. C72-51 (16 pp). Specifications and capacity curves are included.

Morse Chain Co.

Circle No. 28 on Inquiry Card-Page 17

Handy Data on Machine Tool Attachments

Catalog 5418 (40-pages with illustrations) offers full specifications on a complete line of machine tool attachments and accessories. It is a ready source of pertinent data.

South Bend Lathe

Circle No. 29 on Inquiry Card-Page 17

Machining and Grinding Titanium

A series of authoritative articles on machining and grinding titanium has been assembled into a single pamphlet, No. M 1866. It is replete with illustrations and graphic data tables.

Cincinnati Milling Machine Co.

Circle No. 30 on Inquiry Card-Page 17

Silicone Rubber Is Custom-Compounded

Supplement B to Rubber Data Handbook describes the advantages of method of custom-compounding silicone rubber. Properties and ratings are given. Illustrations show parts made from it.

Acushnet Process Co.

Circle No. 31 on Inquiry Card-Page 17

Shears Have Exclusive Features

Exclusive features of a line of power squaring shears are highlighted in bulletin 69D. Described are a multiple-point sleeve clutch, self-compensating hold-down, self-measuring back gage, etc.

Niagara Machine & Tool Works

Circle No. 32 on Inquiry Card-Page 17

Light Welding, Gutting Equipment

Products used for light welding and cutting form the subject of 52-page, illustrated catalog, No. ADC 662B. It covers gases, welding and cutting equipment and accessories and explains jobs for which each is suited.

Air Reduction Sales Co.

Circle No. 33 on Inquiry Card-Page 17

How To Choose Files

A 12-page folder is a compendium of facts on files in all sizes and varieties. It tells how to choose files, emphasizing that in ordering it is necessary to include 3 specifications: length, shape, cut.

Heller Bros. Co.

Circle No. 34 on Inquiry Card-Page 17

How Reversible Gages Can Help You

A 4-page folder describes reversible gages adjustable for use as depth gages. Their advantages are featured and exploded views show how they are constructed. Information on ordering is given.

John Bath & Co., Inc.

Circle No. 35 on Inquiry Card-Page 17

Stock Industrial Forgings For All Needs

Anyone needing industrial forgings or forgings to specifications will be interested in catalog No. 19A (40-pages). It lists dimensions, details, tables, sizes and specifications of most stock type.

The Cleveland Hardware & Forging Co.

Circle No. 36 on Inquiry Card-Page 17

Radio, Electronic Parts For Industrial Use

A general catalog, listing over 25,000 radio and electronic parts and equipment, places special emphasis on equipment for industrial requirements. Standard and special-purpose units are listed.

Allied Radio Corp.

Circle No. 37 on Inquiry Card-Page 17

New Developments In Fluorescent Lighting

Price catalog schedule No. D-216 (44-pages) is a complete treatise on fluorescent lamps and fixtures. A troffer supplement covers 8 pages. There is a good-sized photo of each unit and accurate description.

Smithcraft Lighting Div.

Circle No. 38 on Inquiry Card-Page 17

1400 Electrical Products Described

Over 1400 electrical wiring devices, lamps and products are covered in a 56-page illustrated catalog. Featured is a line of armored locking devices, which are interchangeable with standard locking units

Eagle Electric Mfg. Co.

Circle No. 39 on Inquiry Card-Page 17

Circle Inquiry Card Opposite Page 17 to Obtain These Catalogs

HY-PRO SPECIALIZES IN EVERY PHASE OF TAP PRODUCTION!

... to save you time and money



TAP PROBLEM? You'll be safer to call on Hy-Pro. They specialize in solving all tap needs.



DESIGNS are made to suit your specific demands by designers who specialize in taps.



TAP MATERIALS are the finest high speed steel, specially heat-treated to give you lower costs per tapped hole.



tap is checked individually to guar-antee that the tap will do its job and to maximize its money saving life for you.



HOME OF HY-PRO is this six-acre plant in New Bedford. Here every phase of tap manufacture is done under the careful supervision of specialized production men. SHIPMENTS are speeded on their way by specialists who know



the quickest and safest routes

TAP SERVICE? You've got it at Hy-Pro. We specialize in every phase of tap production . . to save you time and money.



HY-PRO TOOL CO., NEW BEDFORD, MASS., U. S. A.

DISTRIBUTORS IN ALL LEADING CITIES

ADDITIONAL WAREHOUSES:

6046 COLLEGE AVE. OAKLAND 18, CALIF. PIEDMONT 5-4337

DETROIT 21, MICH. UNIVERSITY 4-1077

10428 W. McNICHOLS RD. 6141 NORTH ELSTON AVE. CHICAGO, ILL. NEWCASTLE 1-6486

109 EDISON PL NEWARK 5, N.J. MARKET 2-4318

For More Information Circle No. 217 on Inquiry Card-Page 17

NEWS OF YOUR Suppliers



Jones & Laughlin Steel Corp., Pittsburgh, has named Frank M. Harbison as manager of sales for its Warehouse



F. M. Harbison

Division. Mr. Harbison had been manager of operations for J&L's Warehouse Division.

Fenwal, Inc., Ashland, Mass., has appointed Stuart Edgerly as manager of its newly-formed industrial sales divi-



S. Edgerly

sion. He will administer the sales of industrial temperature controls through the company's sales organization of 32 field offices.

J. P. Coughlin, former manager of the Arc Welding Division of Westinghouse Electric Co., Buffalo, has joined the Eutectic Welding Alloys Corp., Flushing, N. Y., as assistant to the president.

The Billings & Spencer Co., Hartford, Conn., has announced the appointment of W. H. Blackburn to the newlycreated position of assistant to the president. Mr. Blackburn will con-



W. H. Blackburn

tinue his present responsibilities as production manager and purchasing agent in addition to special assignments normally executed by the president's office. He joined the company in 1937 and was named purchasing agent in 1940.

General Electric Co., Bridgeport, Conn., has named James R. Bossone as a district representative to handle GE's construction materials. Mr. Bossone will work in the Philadelphia area.

R. B. Wilson, formerly industrial sales engineer in northern New Jersey for The Parker Appliance Co., Cleveland, has been made sales engineer for Parker o-rings and related rubber products in upper New York State and all of New England, excepting Connecticut.

J. B. Sewell has been made general sales manager of The Garlock Packing Co., Palmyra, N. Y. Mr. Sewell has been



J. B. Sewell

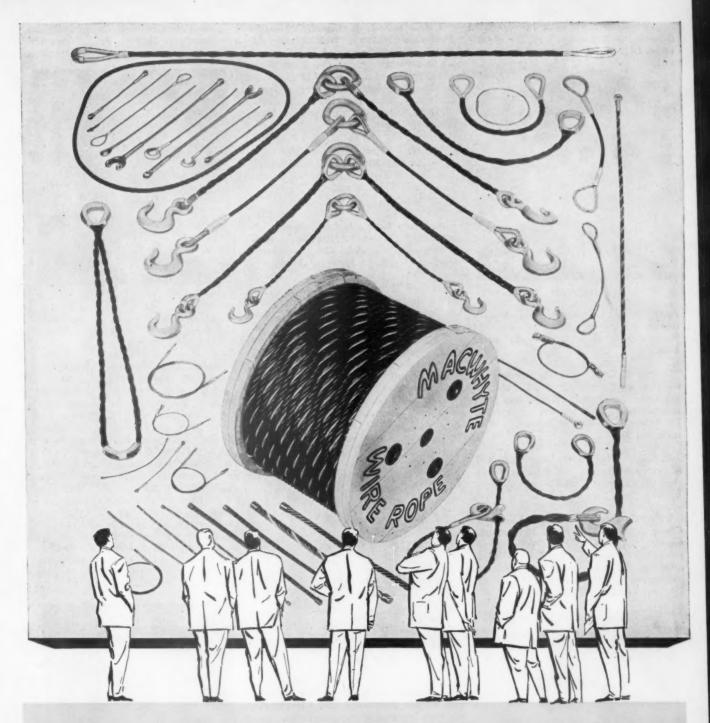
vice president in charge of sales for The Garlock Packing Company of Canada, Ltd.

Charles A. Kuhnmuench has been appointed manager of sales for the Pittsburgh-Cleveland area of **Trent**



C. A. Kuhnmuench

Tube Co., Pittsburgh, a wholly-owned subsidiary of Crucible Steel Company of America. Mr. Kuhnmuench will headquarter in Pittsburgh.



These ropes, slings, and assemblies provide a big selection for your needs

Shown above are Wire Rope products developed and manufactured by Macwhyte Company for maximum safety and economy. There are a thousand and one types and sizes of Wire Rope in Bright Steel, Galvanized Steel, Stainless Steel, and Monel Metal; hundreds of types and sizes of Braided Wire Rope Slings for materials handling; a wide selection of Wire Rope Assemblies for machine parts and controls; and Aircraft Control Cables, Assemblies, Terminals, and Tie-Rods for aircraft and other uses.

All these products are available from Macwhyte Company and distributors. Recommendations will be gladly furnished. A Macwhyte distributor will be pleased to serve you or write direct to:

Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Galvanized, Monel Metal, Stainless Steel Wire Rope, and Wire Rope Assemblies. G-16 Wire Rope Catalog available on request.

Mill depots: New York • Pittsburgh Chicago • St. Paul • Fort Worth Portland • Seattle • San Francisco Los Angeles

Distributors throughout the U.S.A.

MACWHYTE COMPANY, 2918 Fourteenth Avenue, Kenosha, Wisconsin

For More Information Circle No. 218 on Inquiry Card-Page 17

Andrew Liston has been appointed general sales manager of the Eddystone Division of Baldwin-Lima-Ham-



A. Liston

ilton Corp., Philadelphia. He was formerly manager of industrial sales and been associated with Baldwin since 1931.

Henry C. Guhl, formerly manager of engineering for the Micarta Division of Westinghouse Electric Corp., has been named manager of process engineering by National Vulcanized Fibre Co., Wilmington, Del.

J. Robert Pauline has been appointed a vice president of the Kellogg Division of American Brake Shoe Co., New York,

Helicoid Gage Division, American Chain & Cable Co., Inc., Bridgeport, Conn., has named J. H. Williams as sales representative in the Dallas-Tulsa area. He will headquarter in Dallas and cover the northern part of Texas, Louisiana and Oklahoma.



W. C. Schnackel

The new general sales manager of the Round Chain Division, Republic Steel Corp., Cleveland, is William C. Schnackel. He will headquarter in Cleveland.

EMC Recordings Corp., St. Paul, Minn., has appointed William H. Gove as vice president and director of sales.

Union Switch & Signal, Swissvale, Penna., a division of Westinghouse Air Brake Co., has appointed L. T. Lincoln as sales engineer for the West Coast area. Mr. Lincoln, who will headquarter in Los Angeles, will cover Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

Lee R. Herring is now a sales engineer for the Hitchiner Manufacturing Co., Inc., Milford, N. H. He will handle Maryland, Virginia and the District of Columbia.

Aeroquip Corp., Jackson, Mich., has appointed Forrest F. Hinkley as general manager of Aero-Coupling Corp., Burbank, Calif., an Aeroquip subsidiary.

Howard E. Lynch, has been made a sales engineer in charge of the new Buffalo, N. Y., office of Danly Machine. Specialties, Inc., Chicago.

The appointment of William G. Shepard as general sales manager has been announced by The Ohio Injector Co., Wadsworth, Ohio. Mr. Shepard was formerly Ohio's division sales manager in Chicago.



W. G. Shepard

J. H. Stickney, formerly industrial sales engineer in northern Indiana for The Parker Appliance Co., Cleveland, has been given new responsibilities. Mr. Stickney is now a sales engineer for Parker o-rings and related rubber products in northern Indiana, central Illinois, Wisconsin and Minnesota.

The Commercial Equipment Department, General Electric Co., Syracuse, N. Y., has named Walter E. Sutter as manager of sales for instruments and industrial electronic products. Mr. Sutter will headquarter in GE's Electronics Park offices in Syracuse.

Larry K. Norton, assistant to the vice president in charge of sales at Gilman Paper Co., New York, is assuming responsibility for sales of gummed tape and unbleached kraft paper for all Gilman representatives.

Conde Hamlin, formerly general sales manager of DeWalt Inc., Lancaster, Penna., a subsidiary of the American



C. Hamlin

Machine & Foundry Co., has been made vice president in charge of sales and a director of DeWalt.

Norton Co., Worcester, Mass., has announced several changes among its outside sales personnel. Charles M. Wellons, formerly a field engineer at the Philadelphia district office, is now an abrasive engineer and will handle the Philadelphia territory formerly under A. Watson Gough. Robert C. Divoli, formerly a field engineer in Pittsburgh, becomes an abrasive engineer in Pittsburgh. Charles R. Garfield, a recent graduate of Norton's sales training program, has been named a field engineer at Pittsburgh. William J. Mahan is now a field engineer for abrasive grain applications in New England (excepting Connecticut) and upper New York State. Joseph F. Hartl, takes over similar duties in Connecticut.



R. M. Parks

Robert M. Parks, regional sales manager, has been promoted to national sales manager of the Shavex Co., Los Angeles.

Additional News of Your Suppliers will be found following the Industrial Development section



Smith's paper work was mounting—
(he was shipping umpteen different ways)



Then he found that one call can do it all; sending RAILWAY EXPRESS really pays!

The big difference is

Whether you're sending or receiving... whether your shipment is big or small... whether it's by rail or air... for the best answer to your shipping problem, call Railway Express first. A complete shipping service in the American tradition of private enterprise.

As a contribution in the public interest, RAILWAY EXPRESS will take your orders for CARE.



... safe, swift, sure

Proven On loads UNDER 600 Amps....

Fusetron dual-element Fuses Have an Interrupting Rating in Excess of 100,000 Amps.

An interrupting rating in excess of 100,000 amperes for FUSETRON dual-element fuses . . . this was shown by tests that were conducted under conditions that simulated the most severe field conditions. These tests were witnessed and verified by the Electrical Testing Laboratories of New York.

The test circuits were set to deliver far in excess of 100,000 amperes - yet the 250 and 600 volt FUSETRON fuses cleared the shorts without igniting readily flamable material placed around the fuses . . . and there was comparatively little noise.

These tests show that Fusetron fuses, even in the small 30 ampere range, can interrupt safely the most severe available short circuit current.

No interference with time-lag

Time-lag is of utmost importance to give proper motor and electrical protection and to eliminate needless blowing of fuses. Even

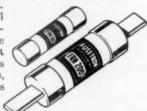
though the interrupting capacity has been greatly increased, the time-current characteristic of Fusetron fuses has in no way been disturbed.

ALL THIS ADDED SAFETY

without changing a panelboard or switch . . plus 10 point Protection of FUSETRON dual-element FUSES!

1. Protect against short-circuits. 2. Protect against needless blows caused by harmless overloads. 3. Protect against needless blows caused by excessive heating lesser resistance results in much cooler operation. 4. Provide thermal protection — for panels and switches against damage from heating due to poor contact. 5. Protect motors against burnout from overloading. 6. Protect motors against burnout due to single phasing. 7. Give double burnout protection to large motors

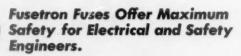
without extra cost. 8. Make protection of small motors simple and inexpensive. 9. Protect against waste of space and money - permit use of proper size switches and panels. 10. Protect coils, transformers and solenoids against burnout.



Fusetron Fuses Help eliminate needless Shutdowns for **Production Engineers.**

Work stoppages caused by needless blows are prevented. Even if all the motors on a circuit start at one time or other harmless overloads occur, the fuse link holds to prevent a shutdown.

Likewise, Fusetron fuses guard against needless blows caused by excessive-heating in panelboards and switches—lesser resistance results in cooler operation.



With an interrupting rating of 100,000 amperes, Fusetron fuses give the greatest possible protection against damage due to short-circuits. And just as important, they reduce the hazard of

motor burnouts due to single phasing and overloading.



Fusetron Fuses Save Time and Work for Maintenance Engineers.

Once properly installed, Fusetron fuses require no costly inspection time or down-time for calibration and other maintenance necessary on mechanically operated devices.

Unnecessary repair work on motors is avoided because Fusetron fuses reduce to a minimum the danger of damage due to electrical faults. If trouble occurs, instead of rewinding or replacing burned out motors, simply replace Fusetron fuses.

Switches and panelboards are protected against damage from poor contact heating.

Fusetron fuses also protect against needless blows that cause irritating interruptions of regular maintenance.

Proven On loads ABOVE 600 and up to 5,000 Amps.

BUSS Hi-Cap Fuses Have Interrupting Rating In Excess of 100,000 Amps. .. and their blowing

time can be coordinated with that of Fusetron fuses.

An unlimited interrupting rating for BUSS Hi-Cap fuses on any voltage up to 600 . . . this was confirmed by tests reported by the Electrical Testing Laboratories of New York.

BUSS Hi-Cap fuses are designed to give protection against dangerous overloads as well as high fault currents - yet retain the speed of operation necessary to limit heavy short currents to safe values.

When coordinated properly with Fusetron dual-element fuses they will not open ahead of the fuse nearest to the fault — thus the trouble is isolated to the part of the circuit in which the fault occurs.

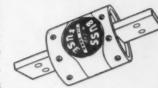
Added SAFETY on Old Installations

On installations where the increase in the capacity of the circuit has outgrown the interrupting rating of the circuit breakers, BUSS Hi-Cap fuses offer a safe and relatively inexpensive way to protect inadequate breakers against rupture in event of bad fault.

ACTION THAT SAVES YOU MONEY

Don't risk losses. Delay may cost you far more than replacing every fuse with a FUSE-

TRON fuse. By passing the word along that all purchase and stock records should call for FUSETRON dualelement fuses on loads



up to 600 amperes - and BUSS Hi-Cap fuses on loads above that, you get action that begets money saving.

On New Construction tell your architect to specify this Safer, Better Protection.



Fusetron Fuses Cuts Cost for Top Management.

Cuts maintenance cost — Fusetron fuses are maintenance

Cuts motor repair cost - Fusetron fuses guard the motor, against damage due to overloading, single phasing, short circuits and other electrical faults.

Cuts production costs - Shutdowns due to needless blows are eliminated.

Cuts new installation costs - Smaller sizes can be used, therefore big savings can be made on switches and panelboards.

Cuts present installation costs — Fusetron fuses hold and won't open on starting currents so the need for larger panelboards and switches is often eliminated and in many cases new motors can be added to the circuit without installing larger panelboards or switches.

Play Safe-Install Fusetron Fuses and BUSS Hi-Cap Fuses now!

For blowing time charts or more information on FUSETRON fuses and BUSS Hi-Cap fuses use coupon or write for bulletin FIS and HCS.

TRUSTWORTHY NAMES IN

BUSSMANN Mfg. Co. (Division of McGraw Electric Co.) University at Jefferson, St. Louis 7, Mo. Please send me complete facts about FUSETRON dual-element Fuses and BUSS Hi-Cap Fuses.

BUSS

Title Company Address

City & Zone



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F.O.B.



FILOSOFY OF BUYING



THE traditional welcome mat has gone modern and informal. A new design recently put on the market has boldly substituted the warm and neighborly salutation—"Howdy". President Charles Terry of Interstate Rubber Products Corp., Los Angeles, producers of the "Howdy Mat", describes the innovation as something more than a mere novelty item. It is, he opines, an excellent way to greet business callers and put them in good humor.

T IS no longer news to find women holding responsible positions in the purchasing field. But Mrs. Etta G. Herman. Purchasing Agent for Herrick Iron Works, Oakland, Cal., who recently celebrated her 25th anniversary with the firm and her 20th on the purchasing job, is a pioneer in more ways than one. When she joined Herrick in 1929 as a timekeeper, she was the first woman to be employed by the company. Today, there are 14 women among the company's 250 employees.

PSYCHO-ANALYSIS has joined the sales team. According to The Wall Street Journal, there are now some 80 research organizations offering to delve into the subconscious mind of the unwilling buver to disclose the hidden sources of his sales resistance to particular products, and a considerable number of the larger industrial companies have established their own staffs of "mo-

tivation researchers". Example: one producer, "exasperated" by stubborn and irrational refusal of many purchasing agents (and engineers) to buy its glass pipe for chemical and food processing, despite its demonstrated advantages, employed a team of psychologists to find the reason. Report: it's an "emotional block" based on the childhood experience of getting spanked for breaking fragile water glasses. New sales problem: to sever this deep-seated relationship of ideas in the psyche of the P.A.; to convince him that he's a big boy now and won't get spanked if the glass tube breaks, which it probably won't.

WHAT the well dressed purchasing office will wear is illustrated in a recent issue of the Dallas News, showing a picture of Miss Marilyn Duggan, P.A. of the Magnolia Seed Company, in her newly appointed quarters. "New mauve tones are used throughout in a monochromatic scheme," the item reports, and the drapes have an aluminum coated lining to help insulate the large picture window exposed to the sun.

ORE and more local newspapers are lining up on the side of the purchasing agent in the repeated internal controversies that seem to be a part of public purchasing. And their arguments give evidence that they are really digging into the technicalities of purchasing

and the statutes that govern it. The Omaha World-Herald, going to bat for better buying in the purchase of highway equipment for Douglas County, taking the trouble to make requirements and price comparisons with similar equipment bought by the State, finds the County paying \$5,915 per vehicle more than necessary and pins the trouble right on that bane of all buyers-restrictive specifications. Its editorial states: "The key figure in this procedure is the County surveyor. His specifications determine who can bid and who can't The provision that public bodies may choose the 'best' bid rather than strictly the 'lowest' one was placed in the law for the public's protection. On occasion, especially when specifications are carelessly drawn, the lowest bid may offer merchandise which is too shoddy to be economical. But sometimes public officials abuse the reasonable leeway given them, and for reasons of their own buy from a favored seller. Whether that has happened in this case is a matter which ought to have the most earnest and searching scrutiny."

STAFF reporter on the Wall Street Journal has discovered Value Analysis, and did an excellent article on it in the September 14th issue entitled "The Purchasing Agent Dons Scientist's Cloak." Not exactly news to buyers, since some of the material was published in these pages as much as six years ago, but probably a real eye-opener for some readers in the executive group. The Journal quotes John Hill's 1953 convention address on "The Pur-chasing Revolution", in which he characterizes purchasing as "a profit making function that deserves well trained specialists rather than a mere service performed by order clerks." It also reports an "informed guess" by past N.A.P.A. President Andy Andrews that practically all of the top 10% of companies, by size, now maintain purchasing research departments, and that the number has doubled or tripled in the past few years.

A NOTHER purchasing man has qualified for the Cleveland Plain Dealer's "Gallon Club" of blood donors who have given eight pints since the outbreak of the Korean War. He is Ernest V. Fanzoi, World War II veteran, and buyer for the Reserve Mining Company.



SAFETY GRIP CONVEYOR BELTS

"Takes cartons up steeper grades than any other rough top belt." "Better stability at greater angles of incline!" . . . "Consistently able to move smooth-surfaced materials up an incline of more than 40°." These are factual quotes from reports of an independent laboratory test which proved the superiority of this tough, multi-tentacled Quaker belt over other makes. Thousands of rubber tentacles securely grip slippery or round-contoured materials. High flexibility and robust construction give longer belt life. Live, non-slip rubber on friction side assures proper traction between belt and pulley. For secure and continuous steep-incline conveying, use Safety Grip Rough Top Conveyor Belt . . . another Quaker quality product for more productive material handling.

Write for free folder and name of nearest distributor.

Belting, Hose, Packing and Moulded Rubber of every construction for every need.

QUAKER RUBBER CORPORATION DIVISION OF H. K. PORTER COMPANY, INC.

PHILADELPHIA 24, PA. Branches in Principal Cities

For More Information Circle No. 222 on Inquiry Card—Page 17
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on Inquiry Card—Page 17→

PRATT & WHITNEY

a name that means

Complete, Integrated TECHNICAL SERVICE near as Your Telephone

ODERN CONCEPT IN SERVICE GEARED TO

Including ...

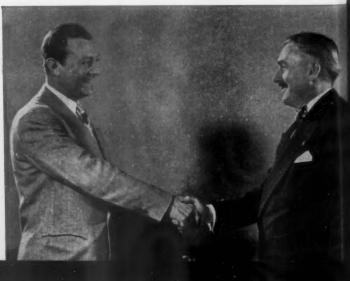
Comprehensive Local Stocks

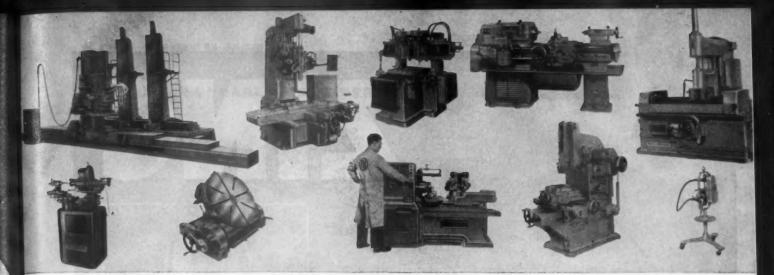
Pratt & Whitney Branch Offices are strategically located in principal manufacturing areas throughout the country; there's one conveniently near you . . . if not right in your own city, it's at least as near as the phone on your desk and within quick shipping distance. The P & W Branch Office in your area makes it a point to become familiar with your needs and to carry comprehensive stocks of the Pratt & Whitney Cutting Tools and Gages you call for. You are saved time, expense and trouble of maintaining large inventories in your stock rooms. Where desired, deliveries can be geared to your production schedules.

Expert Engineering Assistance

The Pratt & Whitney Representative who calls on you is a factory-trained specialist fully experienced in everyday manufacturing problems. Here is a man who talks your language. In direct contact with the Pratt & Whitney Plant, he places a wealth of practical engineering information at your disposal. This P & W Specialist is thoroughly qualified to recommend the right equipment exactly suited to your specific needs from the complete P & W lines of Machine Tools, Cutting Tools and Gages. Why settle for less, when straight-line, factory-direct skill and knowledge is yours for the asking?







MACHINE TOOLS

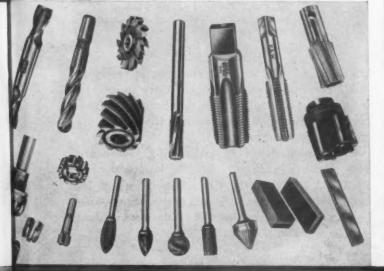
Unique Combined Experience

Manufacturing a complete line of Machine Tools, Cutting Tools and Gages, Pratt & Whitney possesses a unique combined experience and an unmatched ability to correlate all the varied and vitally interrelated problems of modern manufacturing. This position of superiority is manifested in the significant advances and improvements in Pratt & Whitney products . . . and in P & W's ability to serve you better all ways!



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DIVISION NILES-BEMENT-POND COMPANY
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First Choice (B) for Accuracy

BRANCH OFFICES AND STOCK . . . BIRMINGHAM*
BOSTON • CHICAGO • CINCINNATI • CLEVELAND
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Stanco Co.) • LOS ANGELES • NEW YORK • PHILADELPHIA
PITTSBURGH • ROCHESTER • SAN FRANCISCO
ST. LOUIS • EXPORT DEPT., WEST HARTFORD
*Office only.

MACHINE TOOLS . CUTTING TOOLS . GAGES

DIE CAST OF Z



The "innards" of the "Crown Jewel" incorporate mechanical innovations which are claimed to insure retention of the flavor-bearing coffee oils. Its body, spout and cover are gleaming stainless steel, its raffia style handle is heat-proof plastic, and its base, legs and handle holders are ZINC Die Cast.

Here's Why

In designing the beautiful new "Crown Jewel" automatic electric coffee percolator, the engineers of the Cory Corporation spared nothing in their effort to make this product the finest in its field. And the dual objective of maximum beauty and utility was achieved, in large measure, through the use of six ZINC Die Cast components. Of these, the above base casting is the most outstanding.

This ZINC Die Casting is shown as it is received by Cory from the die caster. The stepped exterior design is clean-cut—with recesses for the legs—and a minimum of preparation is required to coat the as-cast surfaces with a handsome and durable 24-karat gold plate. The interior of this sturdy ZINC Die Casting has a cored center hole and cast bosses and splines which facilitate assembly of the thermostat

controls and attachment of the base assembly to the body unit. Furthermore, the Cory name and address and other nameplate data for the percolator are engraved on the bottom of the base in the die casting operation.

The "Crown Jewel" is just one of a great many new products made more salable through the use of ZINC Die Castings. For additional examples

> ask us-or any die casting companyfor a copy of "The End Uses of Zinc Die Castings."

The New Jersey Zinc Company 160 Front St., New York 38, N. Y.



ZINC
FOR DIE CASTING ALLOYS

The Research was done, the Alloys were developed, and most Die Castings are based on

HORSE HEAD SPECIAL

99.99 + % Uniform Quality

ZINC

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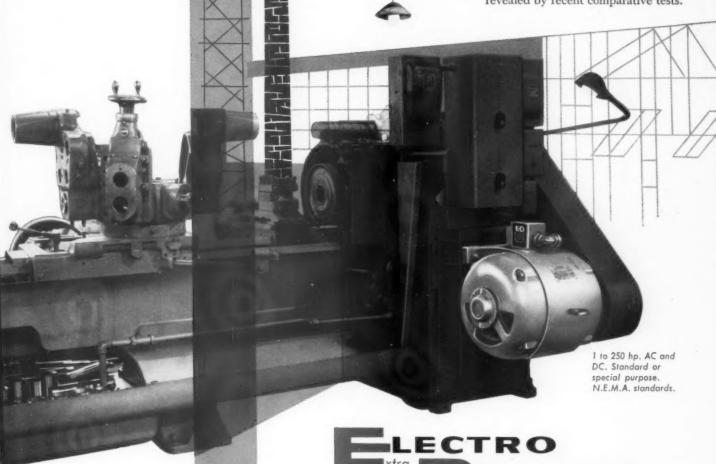
For More Information Circle No. 225 on Inquiry Card—Page 17→
Purchasing

THIS EMBLEM MARKS THE "POWER SPOT" ON **EXTRA DEPENDABLE MACHINERY**



An industrial machine is only as reliable as the motor that runs it. That's why the red "power spot" on an Electro Dynamic motor is so significant. It positively identifies the most dependable power available to industry today.

Mail the coupon below for the full facts behind the extra dependability of E.D. industrial motors. Note their special construction features. Check the dramatic results in superior performance revealed by recent comparative tests.



ELE	CTRO	DYN	AMIC	Divisi	on of	General	Dynamics	Corporation
179	Aven	ue A,	Bayo	nne,	New	Jersey		

Elevators and building Brewing and Metal working bottling equipment

Air conditioning and

refrigeration

packaging

Food processing and

Meat packing

and rendering Oil pumping

pulp and paper Tanning

Textiles

Chemicals

Mining

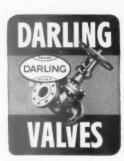
Lumber,

Send literature on Electro Dynamic industrial motors for power applications in the industry checked at left to:

COMPANY_

ADDRESS_

Other field not listed.



INSIDE STORY...

on trouble-free valve performance

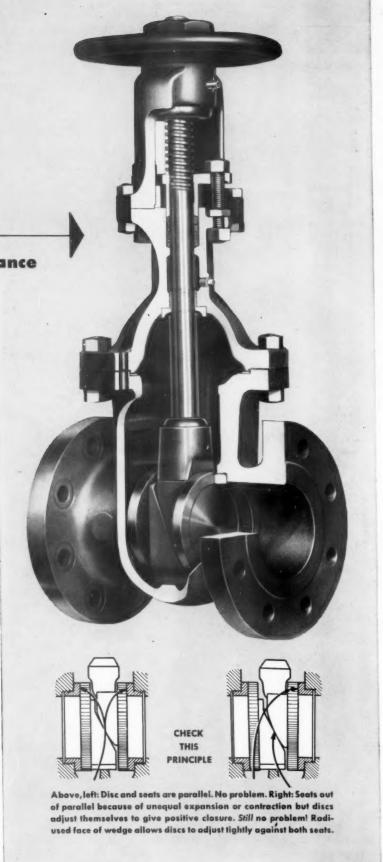
Revolving Disc GATE VALVES

Just what the doctor ordered... that's what users say about Darling fully revolving double disc, parallel seat gate valves. Reason: These unique valves adjust automatically to compensate for valve body distortion.

Moreover, Darling gate discs, independently hung from the upper wedge and free to revolve completely, change their seating position at each closing. This means uniform wear distribution. Valves work better and last longer, require less attention, less maintenance.

Wide Range Of Sizes And Types

If you're not already a Darling revolving disc gate valve user, let us prescribe the valve you need to cure your valve trouble. Darling gate valves come in a wide range of types and sizes . . . and for pressures up to 1500 pounds. Simply outline your particular service needs or ask for a complete descriptive bulletin.



DARLING VALVE & MANUFACTURING CO.

Williamsport 7, Pa.

Manufactured in Canada by Sandilands Valve Manufacturing Co., Ltd., Galt 19, Ontario



How Rome Synthinol® Helps Solve Heat and Corrosion Problems

Some 16,000 feet of Rome Synthinol, color-coded for circuit identification, are doing a job at Shell Chemical's new Ventura (Calif.) petrochemicals plant.

Like most chemical plants, and many other industrial operations, this Shell plant runs 24 hours a day all year round. And while electrical cable may not be the "star performer" at Ventura, like other component equipment it has a vital role in a round-the-clock type of operation.

Dependability, therefore, is a *must* and the use of Rome Synthinol is an example of how Shell has met the "must" for heat and corrosion resistance. Rome Synthinol polyvinyl chloride insulation securely protects electrical wiring against high temperatures and corrosive chemical conditions. It is National Electric Code approved as Type TW.

Over 18 Miles of Other Cables

Specifically engineered Rome products are performing other significant jobs for

Shell at Ventura.

... there's RoZone-RoPrene cable with its all-resistant properties—for example, the high ozone resistance of the RoZone oil-base insulation. Also there is RoMarine-RoPrene, specified for heat and moisture resistance. The RoPrene (Neoprene) sheath, common to both these cables, provides rugged mechanical protection.

... and there are more thousands of feet of Rome quality braided building wires, also color-coded for ready identification in multiple circuits.

Personalized Engineering Help

Whether your wire and cable problems are unusual, extra tough, or ordinary—whether your project is modernization, expansion, or brand new facilities, Rome Cable can help you, too.

Write today for information on YOUR wire and cable requirements. Personalized Rome engineering help is available coast-to-coast, when YOU need it.

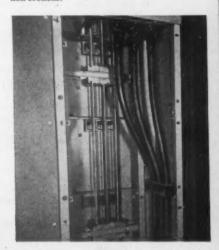
A section of the new Shell Chemical Corporation plant at Ventura, California. Product: liquid ammonia (NH₃), chiefly for soil fertilization, made by reacting nitrogen from air with hydrogen from natural gas.



Modern lathes in the machine shop maintain the efficiency of precision plant equipment.



Part of an instrument board controlling intricate processes in gas reforming and purification sections.



One of many neat installations readily made with Rome cables such as RoZone-RoPrene, RoMarine-RoPrene and Rome Synthinol.

It costs less to buy the best

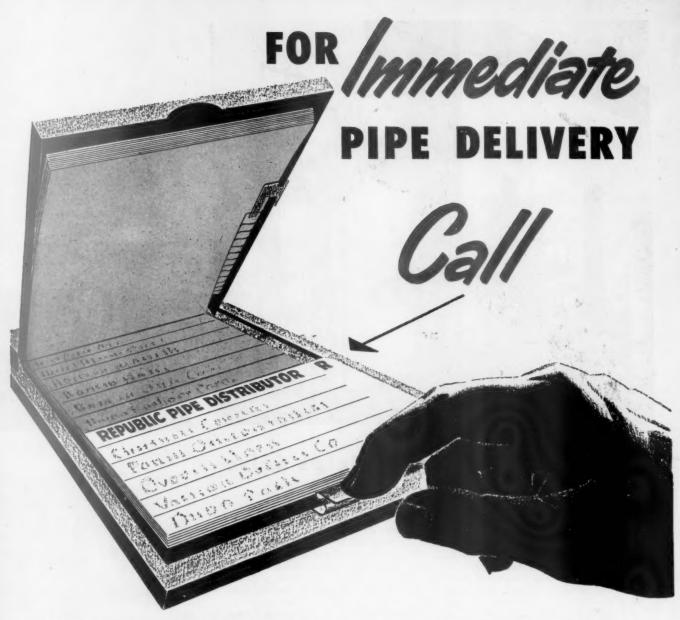


NEW 45-minute sound color film "CABLE—PATH-

WAY OF POWER" now available for showings to technical personnel. For bookings, write to Rome Cable Corporation, Rome, N. Y.



For More Information Circle No. 227 on Inquiry Card-Page 17



You'll discover your Republic Pipe Distributor a good man to do business with. He always has on hand a full line of steel pipe in every size—plus fittings, valves, tools, fixtures, controls—everything needed for complete installations. And whether you want a few lengths of pipe or a truckload, your phoned order will receive prompt attention and rapid delivery.

Make his stockroom your stockroom . . . and

save yourself time and money. You can avoid large capital investments, yet have all the material you want when you want it. You save floor space...insurance...handling costs as well.

Keep your Republic Steel Distributor's telephone number handy. Successful operators find it profitable to take advantage of his services. Give him a call. He'll be glad to answer any questions.

- Easy to bend, thread, and close coil
- Easy to weld by all methods
- Uniformly ductile
- O Uniformly strong
- Uniformly clean and scale-free
- Uniform wall thickness, diameter, concentricity
- Economical uniform lengths, extra long lengths





NOW 20% less weight 25% MORE GRINDING POWER with new B&D Portable Grinder

Now you can reduce fatigue, do grinding jobs faster, more accurately than ever before with this new Black & Decker Grinder. 4500 RPM. Splined gear mountings. Full-size ball bearings to insure long life. B&D-built motor designed *just* for this tool. Housing designed to prevent clogging by dirt and grit. Air ex-

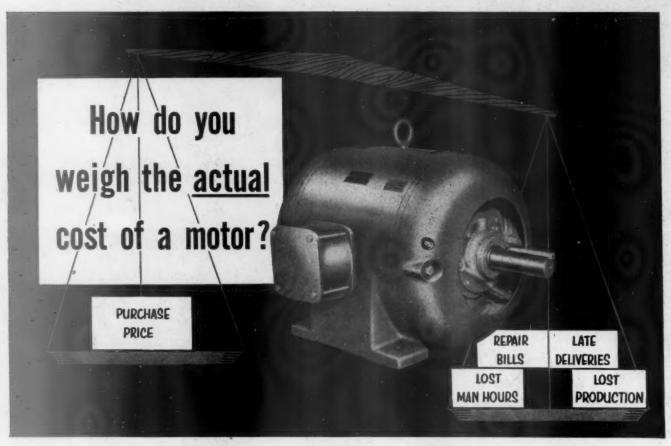
haust directed away from operator. Use it to do a multitude of jobs around your plant or shop. See this new grinder (and the other grinders shown on this page) demonstrated at your B&D distributor. Also write for further information. The Black & Decker Mfg. Co., Dept. 1711 Towson 4, Md.

LEADING DISTRIBUTORS EVERYWHERE SELL

for nearest distributor, see "Tools-Electric"







Keep costs down...choose Wagner Motors

The selection of the right motor for every specific industrial application is all important. Due consideration must be given to motor type, rating, slip, torque values, and other operating characteristics.

But, because the ultimate cost is the actual cost of a motor... alert buyers look beyond such specifications. They look for other factors, such as cool operation, with consequent longer insulation life... and they consider the time-tested proven dependability of the brand of motor they specify. They know that it's costly to take chances with motor drives.

Wagner Motors have been proving their reliability for more than sixty years. Many thousands of users throughout industry have found them a lasting investment in continuous troublefree performance.

The wide range of types and sizes in Wagner's complete line permits the selection of a standard motor for almost any need. Bulletin MU-185 gives full information.

Your nearby Wagner engineer will be glad to help you select the *right* motors for your next application. Call the nearest of our 32 branch offices, or write us.





WAGNER ELECTRIC CORPORATION
6360 PLYMOUTH AVE., ST. LOUIS 14, MO., U.S.A.

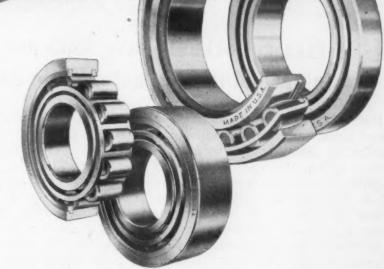
BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE
BRAKE SYSTEMS—
AIR AND HYDRAULIC

BEST for factory installation ...



When you replace a roller bearing—Straight, Barrel or Taper—you have a choice of several different makes of replacements. But only one—the genuine Hyatt Bearing—gives you a replacement of quality, as well as size and type. When you install Hyatts, you know you're using the same high-quality bearings that are preferred for factory installation by a majority of automobile, truck, bus and farm equipment manufacturers. So make the one sure choice. Insist on genuine Hyatt Roller Bearings for your replacements.



A GENERAL MOTORS PRODUCT



A UNITED MOTORS LINE



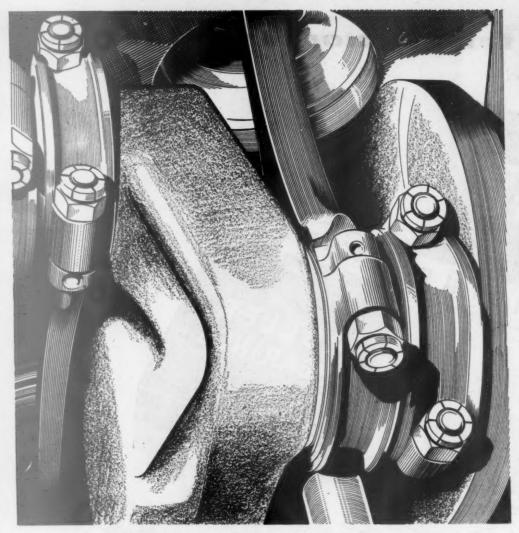
DISTRIBUTED BY DEALERS EVERYWHERE

STRAIGHT (BARREL (TAPER (

HYATT BEARINGS DIVISION . GENERAL MOTORS CORPORATION . HARRISON, NEW JERSEY

NOVEMBER, 1954

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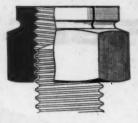
More and more automotive repair shops and industrial plants are turning to FLEXLOCS to reduce maintenance on high speed, vibrating equipment.

FLEXLOC locknuts save \$600 per year in reconditioning automobile engines

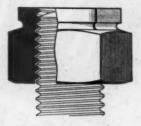
By using Flexlocs on connecting rod bolts, a motor reconditioning shop cut assembly time by a minimum of 5 minutes per motor. This added up to a yearly saving of 250 hours or \$600. No drilling of bolts was needed . . . no adjusting of nuts to set cotter pins was required. And the Flexlocs assured a tighter assembly than was possible with the castellated nuts and cotter pins formerly used.

FLEXLOC locknuts reduce maintenancetoo. Once they are installed, you can forget them. Service and inspection periods can be stretched safely from days to weeks. And FLEXLOCS are reusable. They can be applied again and again without losing locking efficiency.

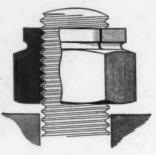
You can get Flexloc Self-Locking Nuts of various types and materials in a wide range of sizes and in any quantity. These one-piece, all-metal nuts are carried in stock by leading industrial distributors everywhere. Write for literature and samples for test purposes. Standard Pressed Steel Co., Jenkintown 31, Pa.



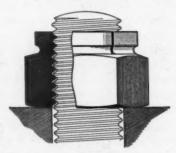
Starting. A FLEXLOC starts like any ordinary nut. Put it on with your fingers. Tighten it with a standard hand or speed wrench.



Beginning to Lock. As the bolt enters the segmented locking section, the section is expanded, and the nut starts to lock.



Fully Locked As a Stop Nut. When 1½ threads of a standard bolt are past the top of the nut, the FLEXLOC is fully locked. A FLEXLOC does not have to seat to lock.



Fully Locked As a Seated Nut. When it is used as a lock or stop nut, the locking threads of the FLEXLOC press inward against the bolt, lifting the nut upward and causing the remaining threads to bear against the lower surface of the bolt threads. Vibration will not loosen a FLEXLOC, yet there is no galling of threads.



LOCKNUT DIVISION

SPS JENKINTOWN PENNSYLVANIA

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Purchasing



Thermoid Conveyor Belting cuts your handling costs



There's a Thermoid Conveyor Belt designed to lower your costs on every type of materials handling job. Each is best suited for the particular type of service recommended. Here are 3 selected from the complete Thermoid line: NEOPRENE—built especially for conditions where heat and oil are encountered; THERMOGLAS—designed for use where belt is exposed to temperatures of 275° to 350° F.; RUFFTOP—Thousands of irregular gripper points guide smooth surfaced articles up inclines to 35°.

Thermoid's exclusive impregnation process welds carcass and cover into an exceptionally strong, durable belt. Finest quality reinforcement and specially compounded rubber stocks assure long life, less down time, lower handling costs. Your Thermoid Distributor carries a full line of Thermoid Conveyor Belting, Hose and Multi-V Belts to meet your most exacting requirements. He maintains complete stocks and can give you fast service. If you prefer, write direct.



Conveyor & Elevator Belting • Transmission Belting F.H.P. & Multiple V-Belts • Wrapped & Molded Hose



Rubber Sheet, Packings • Molded Products Industrial Brake Linings and Friction Materials



"Now, to put it together for keeps... here's the only thing to use...BRASS"

YES, father knows best — or at least he knows his fastenings and what makes them hold fast, and last. Nothing else but good, solid Brass that you can always bank on . . . Bristol Brass, for example.

And more and more manufacturers of screws, rivets, pins and other cold formed products are learning of the savings to be had from the remarkable versatility of wire developed by Bristol engineers. Nothing else permits the making of more types of products and heads (round, flat, etc.) from the same stock. Once they try it, manufacturers reorder from Bristol to take advantage of the inventory simplification offered by Bristol Brass wire.

Brass wire has always been a favorite of manufac-

turers because it is so easy on tools and machines. And many of them specify *Bristol* Brass wire because they find it consistently uniform in gauge, temper and grain-size — and because Bristol's delivery promises are kept. See for yourself. Send us a trial specification now.

The Bristol Brass Corporation has been making Brass strip, rod and wire here in Bristol, Connecticut since 1850, and has offices and warehouses in Albany, Boston, Buffalo, Chicago, Cleveland, Detroit, Milwaukee, New York, Philadelphia, Providence, Rochester, Syracuse. The Bristol Brass Corporation of California, 1217 East 6th St., Los Angeles 21. The Bristol Brass Corporation of Ohio, 1607 Broadway, Dayton,

Bristol-Fashion means Brass at its Best



Simplify and Save The Pure Oil Way!

6-WAY SAVINGS!

- **1 Simplifies Lubrication**
- 2 Speeds-up Application
- 3 Minimizes Mis-application
- **4 Cuts Down Inventories**
- **5 Eases Stock Control**
- **6 Streamlines Purchasing**

Be sure with Pure—Sales offices located in more than 500 cities in Pure's marketing area.

If your plant lubrication is complicated by dozens of different oils and greases, chances are, you're wasting valuable maintenance dollars and man-hours.

Right now's the time to SIMPLIFY your lubrication setup—and watch savings multiply like magic—with Pure Oil multi-purpose lubricants.

Each Pure Oil multi-purpose lubricant; you see, is scientifically compounded to perform *more* than one operation . . . job-proved to cut lubrication costs all along the line—from purchasing to inventory to application.

For complete information on this sure way to big savings, clip out the coupon and mail it today!

It Starts Here!



PURE OIL INDUSTRIAL LUBRICANTS

FREE BOOKLET

The Pure Oil Company, Industrial Sales Dept. P-411 35 E. Wacker Drive, Chicago 1, Illinois Please send me your free booklet on how to "Simplify and Save"

NAME.

POSITION

COMPANY

ADDRESS

CITY_

ZONE_

STATE



Says SHALLCROSS MANUFACTURING COMPANY,

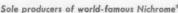
Collingdale, Pa.: "For 25 years we have been using Driver-Harris Manganin wire in the construction of Wheatstone and other precision bridges. In addition, D-H Manganin alloy has been used in many special standards for research and development laboratories. We feel that the quality of our products and the reputation of our instruments have been greatly enhanced by its use."

Behind statements like these stand Driver-Harris production and drawing techniques, which provide Manganin of such fixed stability that maximum change in resistance between 15°C and 35°C is only about 15 parts per million per degree centigrade-and frequently less than one-third this amount. Equally good electrical characteristics are available for ammeter shunt stock operating between 40°C and 60°C.

The experience of Shallcross reflects the experience of a host of manufacturers throughout the country; reflects what you can expect from Driver-Harris products, whether Manganin or any of the numerous alloys developed by Driver-Harris for application in the electrical and electronic fields.

Whatever your alloy problem, therefore, let us have your specifications. We'll gladly put at your disposal the skills acquired from 50 years of alloy manufacturing experience . . . make recommendations based on your specific needs.

*T. M. Rag. U. S. Pat. Off.





Driver-Harris Company HARRISON, NEW JERSEY

BRANCHES: Chicago, Detroit, Cleveland, Los Angeles, San Francisco In Canada: The B. GREENING WIRE COMPANY, Ltd., Hamilton, Ontario.

MAKERS OF THE MOST COMPLETE LINE OF ELECTRIC HEATING, RESISTANCE, AND ELECTRONIC ALLOYS IN THE WORLD



"THE BEST INVESTM ENT OF TIME I EVER M

"We were in a spot. Our electronically controlled production equipment was down through lack of one key tube type for replacement. Well, you know what that means in dollars and cents ... not to mention delayed shipments. We had to have that tube ... and in a hurry.

"I immediately contacted our RCA Tube Distributor who was located nearby, and told him about our problem. Yes, he had the tube and would get it right over to us. In less than an hour the tube was in our hands, and we were back in production.

"Naturally, I called the distributor back to thank him for the service, and during the conversation he asked if I was acquainted with the RCA Tube Inventory Maintenance Plan. I had to admit I wasn't, so he made an appointment to drop around and see me the next day.

"I didn't know it then, but I was in for an eye-opener. This fellow had a real service to offer. He showed me how we could set up well-balanced inventories of electron tubes under the RCA Tube Inventory Maintenance Plan, cut down overstocks, yet always be sure we had enough of the key types on hand.

"It didn't take me long to see the value of the plan. We have it in operation now, and it's working like a charm. The day I listened to that RCA Tube Distributor's story was the best investment of time I ever made."

RCA's Electron Tube Inventory Plan is proving helpful to many leading manufacturers. Why not let it go to work for you? Call your RCA Distributor now; he will be happy to custom-fit this plan to your operation. It can mean real dollar savings in your plant.



Your local RCA Tube Distributor can give you fast service on all types of RCA electron tubes for industrial applications: Thyratrons, Phototubes, Cathode-Ray Tubes, Rectifier Tubes. Ask him about RCA Tube Inventory Plan TODAY!





RADIO CORPORATION of AMERICA

ELECTRON TUBES

HARRISON, N. J.



New kind of service for shippers! **UNITED AIR LINES**' RESERVED SPACE AIR FREIGHT PLAN

Be sure of the right space at the right time and know in advance when shipments will move in and out.

Here's how! United Air Lines' new Reserved Space Air Freight Plan provides air freight shippers and receivers with guaranteed air freight space. Reserved Air Freight moves on most United flights; is offered after consideration of space requirements for air mail and air express. Only United offers service like this in the U.S.

Just contact your local United office or air freight representative. Give them the facts about weight, size, destination and shipping schedule you wish to meet. From then on you have virtually your own shipping space to use at will for prompt, dependable deliveries between 80 U.S. cities coast-to-coast, border-to-border and Hawaii. Convenient door-to-door delivery speeds your shipments to and from the airport.

The nation's greatest high-speed cargolift!

GET THE FACTS NOW!

Consult your local telephone directory for location of your nearest United office.

UNITED AIR FREIGHT



Here's Valuable Buying Information on

GENERAL'S

INDUSTRIAL PRODUCTS DIVISION



This free booklet explains General's custom design and production service on extruded rubber and plastic, molded rubber and fiberglas, Silentbloc vibration and shock mounts, panel mounts, metal stampings, and rubber-to-metal parts. As part of this made-to-order service we utilize our own tool and die-making facilities, self-designed molding and extruding machinery, and full scale quality control safeguards at every phase of manufacture.

Why not investigate this proven source of supply? No obligation, of course. Just fill out the coupon below.

Here are some of our many products now serving and saving in industry Silentbloc vibration and shock mountings Silentbloc bushings Silentbloc bearings Oil & hydraulic seals Bonded to metal rubber parts Hydraulic brake parts Metal stampings
Extruded & molded
rubber
Extruded plastic

Polyester glass laminates Sponge rubber Glass run channel

"From Plans to Products in Plastics and Rubber"

GENERAL TIRE

Industrial Products Division

The General Tire & Rubber Company Industrial Products Division Wábash, Indiana

Send booklet on your full line of custom design and produced products (4252)

Have your representative contact us

Company_____Name__

Street City

P-11-54

For More Information Circle No. 239 on Inquiry Card-Page 17

NOVEMBER, 1954

THE MOST SALES-MINDED MILL ANY ORGANIZATION COULD HAVE!"

That's the way one of our own salesmen expressed his attitude towards the manner in which our mills backed up his commitments to customers.

Here are a few examples of the kind of delivery he was talking about.

ATLANTA—On one order covering 45,000 pounds of Utility Sheet, Kaiser Aluminum shipped in 10 days. It was on the customer's siding—in Atlanta—nine days later.

CLEVELAND—A leading manufacturer asked Kaiser Aluminum for metal in a hurry. We shipped four days earlier than promised.

DALLAS—A major aircraft company urgently needed special aluminum parts for one of their big presses which had broken down. We shipped just three days after the request was made.

This kind of service to meet customer emergencies is typical at Kaiser Aluminum.

It's made possible because of our personalized, flexible delivery service, which is available anywhere in the country. It's made possible because of the attitude of the people behind this service—an attitude that moves them to work harder, longer and with greater determination.

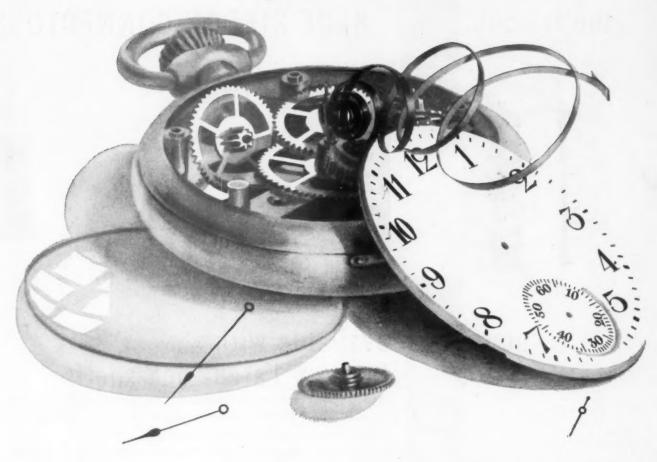
Our record demonstrates that we can meet the emergency requirements of customers more often than any other basic aluminum producer. We invite you to prove that ours is "the most sales-minded mill any organization could have!"

For immediate attention to your needs, call or write any Kaiser Aluminum sales office listed in your telephone directory, or Kaiser Aluminum & Chemical Sales, Inc. General Sales Office, Palmolive Bldg., Chicago 11, Ill.; Executive Office, Kaiser Bldg., Oakland 12, Calif.

Kaiser Aluminum

setting the pace-in growth, quality and service

Everything a watch should have — except the tick!



Your plant can't "tick" properly, either—without Correct Lubrication!

Like this watch, your plant may have all the right "parts"... the finest machines made...yet may not be "ticking"—running at top efficiency—because something is lacking. That "something" is called *Correct Lubrication!*

By Correct Lubrication we mean much more than just "oil" and "grease"—which any oil supplier can provide. We mean a detailed program of lubrication—designed specifically for your kind of machinery and type of operation.

Working with your personnel, we analyze all your machines and their operating conditions to determine their exact lubrication requirements. Then we recommend the *right* Gargoyle product for every moving part, advise on correct methods of application, set up proper lubrication schedules, follow up regularly with progress reports on benefits achieved.

In plant after plant, such a program has effectively boosted production — materially cut maintenance costs. It can do the same for you. Why accept less?

Socony-Vacuum



Correct Lubrication

FIRST STEP IN CUTTING COSTS

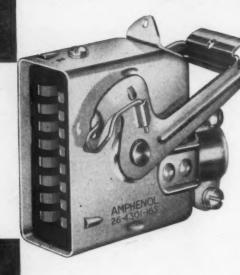
SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

For More Information Circle No. 241 on Inquiry Card-Page 17

AMPHENOL

the famous







Alternate Keying Positions



Receptacle Front Shell



Plug Front Shell

Alternate keying on BLUE RIBBON shells provide positive insurance against mismating in side-by-side connector mountings.

available with Panel & Latch-Lock shells!

Amphenol's crack engineering team have completely redesigned the famous Blue RIBBON connectors and the results will be of interest to every company engaged in electronics.

The basic improvement has been the design of a new method of polarization. Instead of conventional guide pin and bushing polarization male and female *Blue* RIBBON connectors are now mated by means of proper matching of the barrier heights betwen the contacts. Following this first important improvement AMPHENOL's engineers designed a complete line of front panel shells and cable-clamp latch-lock cans to fit the connectors—a step forward that makes the versatile *Blue* RIBBONs even more useful to the electronics industry.

What are the advantages of these design changes to you?

Barrier polarization allows increased contact spacing without extendin the overall length of the connector—mismating is impossible. Front panel shells and latch-lock cans are available for *Blue* RIBBONs in a wide variety of keying arrangements, making possible the mounting of large numbers of connectors side by side without the possibility of connector mismating by untrained personnel.

Latch-lock types may be safety-wired and the cans are available with either end or side cable outlets.

Complete details on ail AMPHENOL Blue RIBBON connectors in CATALOG RI





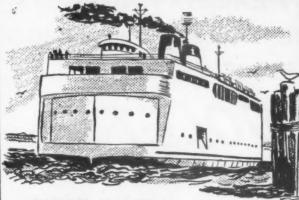






TRAINS RUN WITH GREATER SAFETY!

WITH EXIDE - POWERED SIGNAL SYSTEMS. PASSENGERS AND FREIGHT TRAVEL FASTER AND SAFER. EXIDE BATTERIES PROVIDE A DEPENDABLE SOURCE OF POWER FOR SWITCHES, SIGNALS, CENTRALIZED TRAFFIC CONTROL BOARDS.

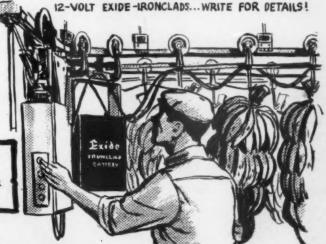


WORLD'S LARGEST DOUBLE-ENDED FERRY USES EXIDE-IRONCLAD BATTERIES!

THE STATE OF MICHIGAN'S HUGE "VACATIONLAND" HAULS TOURISTS IN SUMMER, BREAKS ICE IN WINTER. BELOW DECKS ARE EXIDE BATTERIES TO GUARANTEE POSITIVE OPERATION OF VITAL NAVIGATIONAL GEAR.

EXIDE-IRONCLAD POWER DRIVES THIS "BANANA TRAIN

THIS REVOLUTIONARY ELECTRIFIED HANDLING SYSTEM HAULS 30 TRAILERS OF BANANAS AROUND AN OVERHEAD RAIL ... SAFELY AND AT LOWEST COST. SELF-CONTAINED POWER UNITS RELY ON



EXIDE INDUSTRIAL BATTERIES ARE BUILT FOR LONGER LIFE AND GREATER POWER. LET AN EXIDE SALES ENGINEER SHOW YOU HOW EXIDES CAN IMPROVE YOUR OPERATIONS AND CUT COSTS.

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INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

For More Information Circle No. 242 on Inquiry Card—Page 17 For More Information Circle No. 243 on Inquiry Card—Page 17→ NOVEMBER, 1954

YES-1954 is the year of sharp pencils

FOR REAL SAVINGS
IN WELDED BRANCH FITTINGS
SHARP PENCILS SPELL...

WELDOLETS

\$700 was saved because Weldolets were used on the welded header shown at left. (Actual on-the-job photo.)

Weldolets are available in all principal cities from selective warehousing distributors.

BONNEY

WELDING FITTINGS DIVISION

FORGE & TOOL WORKS

378 GREEN ST., ALLENTOWN, PENNA.

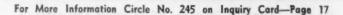
"Be sure of your wire rope"

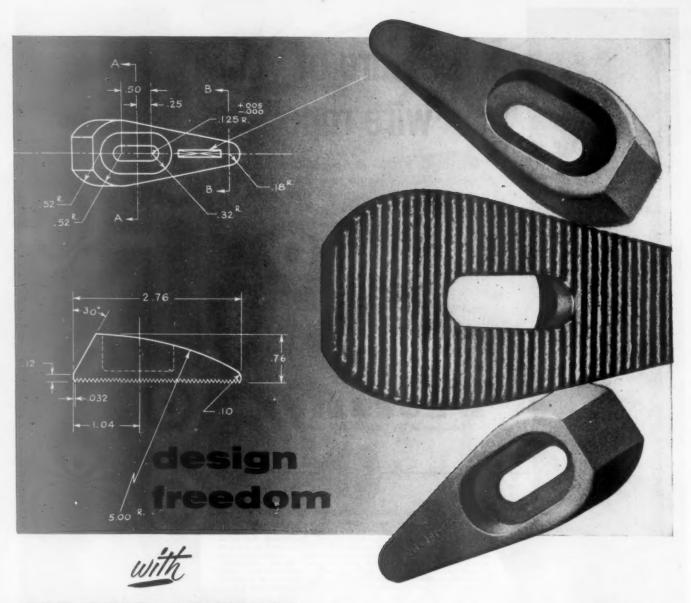
"WE'RE GETTING top performance from this type of rope. And it's the same with all the other ropes we use...Roebling makes a construction and size that's absolutely right for our requirements. When we buy Roebling we get exactly what we want, when and where we want it."

Roebling is one manufacturer who makes a complete line of wire rope for industrial purposes. And no matter where you are, there's a convenient Roebling branch or distributor to give good and fast service. Call your nearest Roebling office or distributor for a Field Man. He'll recommend the best rope for your equipment, and you'll get it on time and right.



JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J.
BRANCHEB: ATLANTA, 934 AVON AVE. * BOBTON, SI BLEEPER
BT. * CHICAGO, 5525 W. ROOBEVELT RD. * GINCINNATI, 3253
FREDONIA AVE. * CLEVELAND, 13225 LAKEWOOD HEIGHTS
BLVD. * DENVER, 4801 JACKSON ST. * DETROIT, 915 FISHER
BLOB. * HOUSTON, 6216 NAVIGATION BLVD. * LOS ANGELES,
B340 E. HARBOR ST. * NEW YORK, 19 RECTOR ST. * ODESSA,
TEXAS, 1920 E. 2ND ST. * PHILADELPHIA, 230 VINE ST. * SAN
FRANCISCO, 1740 177H ST. * SEATTLE, 900 1ST AVE. S. * TUBSA,
231 N. CHEYENNE ST. * EXPORT BALES OFFICE, TRENTON 2, N. J.





CRUCIBLE ACCUMET PRECISION INVESTMENT CASTINGS...

Here's another good example of how Accumet Precision Investment Castings help put an end to design problems.

To machine the curved and tapered surfaces, elongated hole and counterbore, and serrations on this AISI 4140 alloy steel aircraft part, would have been too costly to be practical. But the parts were quickly and economically produced by investment casting.

More and more parts are being designed specifically for the investment casting process. And there are good reasons why. Crucible Accumet Precision Castings allow the greatest freedom of design. Intricately shaped parts can be made of any grade of steel, including high-alloys, in large quantities and at low cost.

It will pay you to let your local Crucible representative give you the whole story of how Accumet Precision Castings can help you produce a better product at lower cost.



CRUCIBLE first name in special purpose steels

54 years of Fine steelmaking

CRUGIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA. REX HIGH SPEED . TOOL . REZISTAL STAINLESS . ALLOY . MAX-EL . SPECIAL PURPOSE ST.EELS

For More Information Circle No. 246 on Inquiry Card-Page 17



for positive oil control! You keep your oil consumption down when you install Koppers American Hammered Conformable Oil Rings! This service-tested piston ring conforms readily to meet cylinder distortion because its flexible cast iron member is pressed outward by an abutment type spring which exerts uniform radial pressure around the entire circumference.

Narrow bearing surfaces on either side of the channel give the ring a uniform unit pressure on the cylinder, enabling it to seat promptly and assuring maximum removal of excess oil throughout its lifetime. And the Conformable Oil Ring has a longer useful life because its low spring rate and uniform lands result in negligible changes in pressure as the ring wears

Easily installed, it is ideal for both 2-cycle and 4-cycle Diesel & Gas engines; comes in 4" to 25" diameters with a minimum width of ¼". Write, wire or phone us today for full information on how the Conformable Oil Ring can improve your operation... or for expert help in any piston or sealing ring problem. Koppers Company, Inc., Piston Ring Dept., 1500 Hamburg Street, Baltimore 3, Maryland.



AMERICAN HAMMERED

Industrial Piston Rings

METAL PRODUCTS DIVISION • KOPPERS COMPANY, INC. • Baltimore, Maryland This Koppers Division also supplies industry with Fast's Couplings, Aeromaster Fans, Koppers-Elex Electrostatic Precipitators and Gas Apparatus.

Engineered Products Sold with Service

		NC., Piston Ring nd me full inform				3, Md.
Name						
Company		*************	***********			
Address-		************			Q	
City	*************	**************	Zone	State		

For More Information Circle No. 247 on Inquiry Card-Page 17

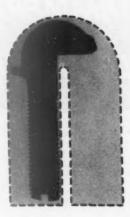
Eight operations cut to four

The old way:

The stud shown here was used by a tank manufacturer to blind feed into a tubing hole during assembly. Multiple diameters were required to hold the stud tight after insertion. To achieve this rather intricate shape, eight operations were originally required ... until National was asked to study the problem.

The National way:

Our "Special Products Service" showed this manufacturer how the stud could be produced to specifications in only four operations by cold-heading. Because National had the wide range of cold-heading equipment and specialized know-how needed to do the job, production costs were cut 50%... and substantial material savings resulted because cold-heading leaves a minimum of scrap.



OLD WAY

Bar stock bent in Ushape was machined to specifications in eight operations, with considerable waste of metal.



THE NATIONAL WAY

Head was upset into shape needed with multiple diameters.

Only four operations needed to complete stud by cold-heading and roll threading.

Bring your "Special" problems to National

Can we help you realize the same type of economy on your special fastener needs? Our "Special Products" representative will be glad to study your specifications. Write for free copy of National's "Special" fastener booklet.

Representatives in:

Chicago, Cincinnatl, Detroit, New York, Philadelphia, Kansas City, Milwaukee, Rochester, Denver, St. Louis, San Francisco and Seattle.







THE NATIONAL SCREW & MFG. COMPANY

Cleveland 4, Ohio

Pacific Coast: National Screw & Mfg. Co. of Cal. 3423 South Garfield Ave., Los Angeles 22, Cal.



Fasteners



Hodell Chains



Chester Hoists

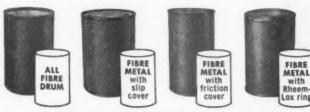


FIBRE DRUMS? STEEL SHIPPING CONTAINERS? STEEL EQUIPMENT CONTAINERS?

RHEEM Announces a Complete Line of Fibre Drums to Provide an All-Inclusive **Shipping Container Service**

To supplement its line of steel shipping and custom equipment containers, Rheem has added a complete line of Fibre and Fibre-Metal drums. These strong, light weight, inexpensive drums come in four types and in a wide variety of sizes.

Choose the Drum that Fits Your Needs



Choose the type that best fits your needs - All-Fibre drums, or Fibre-Metal drums with steel bottoms with either slip or friction covers or with the new, easy to install and remove Rheem-Lox ring. Only Rheem offers all these types of low cost containers.



Choose the Size that Fits Your Needs

Choose the size that best fits your needs. Fibre drums from 1- to 32-gallons in capacity; Fibre-Metal drums from 5- to 60-gallons. There is virtually a size for every possible requirement.

Chicago 29, Illinois
Houston 20, Texas
Linden, New Jersey

New Orleans 20, La.
New York 22, New York
Richmond 4, California
Sparrows Point 19, Md.

Export Sales, 477 Madison Avenue, New York 22, New York

Foreign Affiliates and Associates: Argentina — Buenos Aires • Australia — Adelaide, Brisbane, Fremantie, Melbourne and Sydney • Brazil — Rio de Janeiro • Canada — Hamilton • Italy — Milan • Peru — Lima • Philippine Islands — Manila • Singapore • Spain — Madrid • United Kingdom — Bristol.

NOW, More than ever before, You Can Rely On for all your shipping container requirements



RHEEM STEEL CONTAINERS ARE MADE IN SEVEN STRATEGIC LOCATIONS



Rheem Fibre Drums are being manufactured in four of these plants. Production lines are scheduled for installation in other plants soon.

"FAMILY" IDENTIFICATION Rheem can furnish on Fibre drums the

same type of decorative service it provides users of Rheemcote lithographed steel drums. Any design or

trade mark can be reproduced on an all-over label for Fibre drums in any number of colors to provide "family" identification for your products.

30 gal. Rheem Fibre-Metal Drum 55 gal. Rheemcote Steel Drum

MAIL COUPON

RHEEM MANUFACTURING COMPANY

(Mail to Nearest Sales Office, Listed at Left)

- We would like to have your packaging engineers come to our plant and study our shipping container problems.
- Please send additional information.

NAME OF COMPANY_

STREET_

CITY_

ZONE_STATE_

BY

0

4

5

6

7

8

58

steps for ±.0001 pinions at RDM



Swiss Automatic Blank Turnings (.0002" T. I. R.)

Precision Teeth Cutting To .0002" P.D.

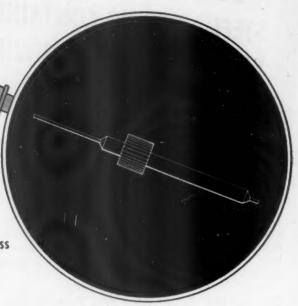
Latest Deburring Techniques

Heat Treating To Prescribed Rockwell Hardness

Burnishing To .0002"-Finishing To .0001"

Leaf Polishing To Extreme Specification

Individually Packaged In Protective Capsules





RDM'S SWISS AUTOMATICS IN OPERATION

These and other production lines of high precision machinery, combined with skilled engineering and production staffs, make RDM a one-stop service for difficult components of extreme precision.

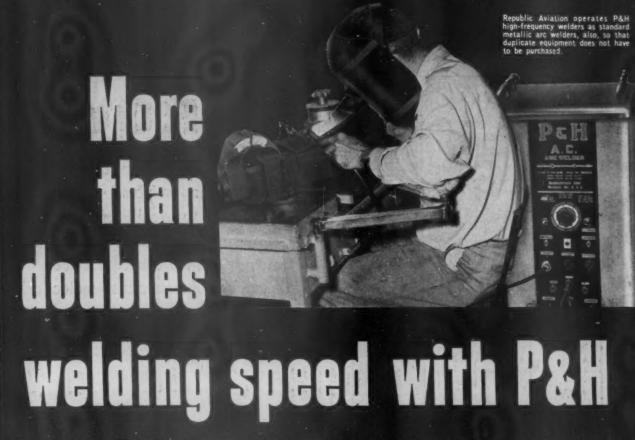
Other RDM specialties include fine pitch gear cutting, thread milling and thread rolling, knurling, heat treating, broaching, drilling and tapping, polishing, grinding, milling, plating.

A brochure is yours for the asking-Write



RESEARCH DEVELOPMENT MANUFACTURE, INC. 431 E. COLLOM STREET, PHILADELPHIA 44, PENNSYLVANIA

PINIONS + GEARS + SHAFTS + PRECISION SCREWS + GEAR TRAINS



30 P&H TH-200 high-frequency machines make inert gas arc welding $2\frac{1}{2}$ to 3 times faster than former gas welding at Republic Aviation Corporation

No replacement maintenance in three and a half years of two-shift operation

You don't have to take our word for the outstanding performance record of P&H Welders. The following statements are actual quotes from a certified report issued by the H. P. Gould Co. of Chicago, who made an impartial study of welding operations at Republic Aviation Corporation, Farmingdale, L. I., N. Y.

"In the building of faster and better aircraft, new developments in welding have played an important part and P&H high-frequency inert gas welding has proved that it can solve the problems of welding aluminum alloys.

"Three and a half years ago, Republic Aviation tested P&H TH-200 HF Inert Gas AC Arc Welders, and evaluated them against the existing equipment in the plant, as well as against outside competition.

"P&H welders of four different types are now used in four locations in the plant, for the welding of hundreds of different parts. In general, they are welding aluminum alloys from .032" thickness up to .250", and heat-resisting alloys from .010" up to a thickness of .093". For arc-welding alloy steels (4130, 4140, 8630, 8740, etc.), experience has proved P&H electrode AW-4 most satisfactory, and it is used exclusively.

"Republic Aviation welding engineers back up the claim of the makers that P&H welders require very little maintenance. The 30 high-frequency arc welders have had no replacement maintenance whatever in three and a half years of two-shift operation — and the operating cost of each P&H TH-200 HF Welder is only 40¢ per day."

Like Republic Aviation, whose studies show P&H inert gas are welding to be 2½ to 3 times as fast as former gas welding you, too, can enjoy the moneysaving advantages of P&H Arc Welders with Dialectric Control. You, too, can get faster, better welds at lower cost.

We've given you the Republic Aviation story in a nutshell! You can get all the detailed facts and figures by reading Gould Report No. 5311. Write for your copy today.

P.H WELDING DIVISION

HARNISCH FEGER CORPORATION

4577 WEST NATIONAL AVE. • MILWAUKEE 46, WIS.











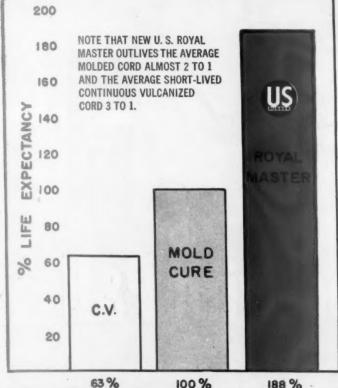




PAH welding equipment is menufactured and said in Canada by REGENT EQUIPMENT MANUFACTURING COMPANY LTD. ASS Kines Street West 9 Targets, Detects, Canada

2600A

Now...88% longer 200 U.S.ROYAL



Chart—summarizing individual service factors weighted by their contribution to overall service life—shows new U. S. Royal Master Cord gives 88% longer life than the average of competitive molded cords.

LOOK FOR THE NAME-

U.S. ROYAL MASTER



- 33.3% greater heat resistance
- 55.7% greater impact strength
- 53.8% greater abrasion resistance
- 30.6% greater resistance to cutting
- 110.3% greater resistance to tearing
- 21.2% greater tension or breaking strength
- 23.3% greater oil resistance
- 128.8% greater flexibility

*to the average of molded cords of other makes



UNITED STATES

cord life—with NEW MASTER portable cord! Far outlasts any other cord made!

Service to cost ratings show new U. S. Royal Master Cord actually gives \$1.88 in value for every cord dollar when compared to the average competitive molded cord!

Two years ago, "U. S." engineers began a complete reexamination of portable cord construction, service life, and the causes of cord failure.

Over 10,000 tests were made. More than a thousand cords of all leading makes, including our own famous U. S. Royal Cord, were analyzed, tested, and compared.

Every life factor was considered and carefully evaluated, alone and in its relation to overall cord performance and service life.

Backed by 64 years of experience in the manufacture of electrical wire and cable, U. S. Rubber engineers then translated their findings into an entirely new portable cord, designed to surpass any other previously made.

Extensive tests, both in the laboratory and in outside plant installations have proved this new portable cord startlingly superior in every respect!

New U. S. Royal Master is unquestionably the finest cord you can buy!

From every standpoint, new U. S. Royal Master is a finer, more durable cord—actually gives 88% longer life than the average of other molded cords—far longer than any other cord—surpassing even a hypothetical cord incorporating the best features of all those tested!

Far greater value, too! In spite of almost doubled service life, this great new cord is in the same price category as other molded cords—giving you \$1.88 in cord value for every cord \$1.00!

Prove to yourself the outstanding superiority of new U. S. Royal Master Portable Cord—in both service life and economy! Get in touch with your "U. S." distributor today!

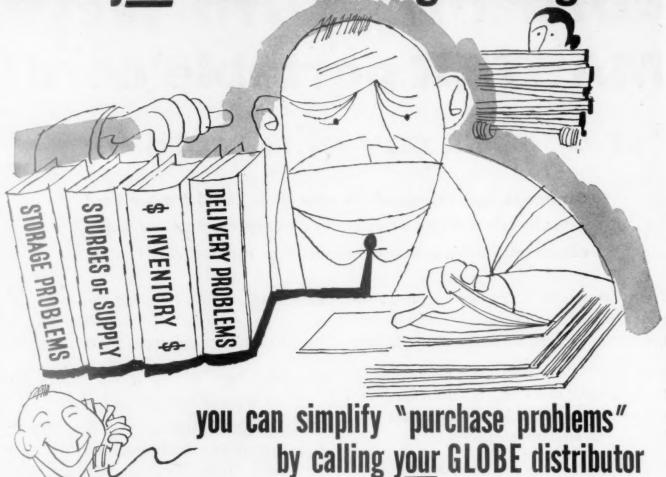
Approved by Underwriters' Laboratories, Inc.

RUBBER COMPANY

ROCKEFELLER CENTER, NEW YORK 20, N. Y.

For More Information Circle No. 252 on Inquiry Card-Page 17

When you need welding fittings ...



Avoid storage problems — dollars tied up in inventory. Hold your "stock on hand" to a sensible, easy-to-work-with quantity.

Your Globe distributor carries a wide range of sizes and types of Globe Precision-Process welding fittings in stock . . . can supply you with the seamless welding fittings you need . . . as you need them.

Get the facts now. Contact the Globe distributor nearest you and ask him to show you how and why he'll be able to save you time, money, and trouble when you need welding fittings.

GLOBE STEEL TUBES Co., Milwaukee 46, Wis.

For the name of your Globe distributor, call any of these District Offices.

Chicago · Cleveland · Denver · Detroit · Glendale, Calif. · Houston New York · Philadelphia · St. Louis · San Francisco



CLOBE PROCESS

SEAMLESS WELDING FITTINGS



Producers of Globe seamless stainless steel tubes— Gloweld welded stainless steel tubes — alloy carbon — seamless steel tubes — Globeiron (highpurity ingot iron) seamless tubes — Globe Welding Fittings.

MEMORANDUM

TO: EDWARD MILLER, SAFETY DIVISION

FROM: JAMES MacKENZIE, PURCHASING

SUBJECT: HEAD AND EYE PROTECTIVE EQUIPMENT

ED: As you know, we've been reviewing sources of supply in all divisions. Objective: Increased profits through purchasing savings we may be overlooking.

Heard about an outfit at lunch today that makes head and eye protective equipment and sells it direct to industry. Got a fast run-down on the company from George Ryan. He's been using their products and saving nicely, he says. Here's the dope on it.

PENNSYLVANIA OPTICAL COMPANY, Reading, Pa.

Branch office and warehouse in San Francisco.

Known for fine ophthalmic products for 68

years. Now marketing industrial safety

equipment under name "PENOPTIC." High finan-

cial rating. Safety products available:

SAFETY GOGGLES WELDING GOGGLES

SAFETY LENSES WELDING LENSES

FACE SHIELDS WELDING HELMETS

WELDING COVER GLASS COVER GOGGLES

Have sent for prices, literature, and ordered samples to run our own tests

PENNSYLVANIA OPTICAL COMPANY

READING, PENNSYLVANIA

Known For Fine Ophthalmic Products Since 1886 For prices and full information on all Penoptic products, write directly to Reading, Pa. or 1712 Taraval St., San Francisco 16, Cal.



Bronze, Electric Iron & Cast Steel Valves and Steel Fittings R-P&C VALVE DIVISION

TRU-LAY **Preformed** WIRE ROPE

ACCO Registered Wire Rope Slings, Crescent Non-Preformed Wire Rope AMERICAN CABLE DIVISION

PAGE CHAIN LINK FENCE



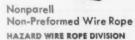
Welding Wire, Shaped Wire, Manufacturers' Wire PAGE STEEL & WIRE DIVISION



AMERICAN CHAIN Weed Tire Chains, Welded and Weldless Chain, ACCO Registered Sling Chains

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Presses, Jacks, Wrecking Cranes, etc. MANLEY DIVISION

These and Other **Acco Products** Offer **Better Values**

 Acco products are designed and manufactured to be "intentionally better." They are used directly, or as component parts in a wide variety of products and machines. They help do many jobs better. 16 Divisions of the American Chain & Cable Company manufacture more than 100 essential products.





Controls, Tru-Stop Brakes for Trucks and Buses AUTOMOTIVE AND AIRCRAFT DIVISION



HELICOID PRESSURE GAGES

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FORD HOISTS

Hand and



CHAIN BLOCK DIVISION



PENNSYLVANIA LAWN MOWERS

Power and Hand Mowers PENNSYLVANIA LAWN MOWER DIVISION



CAMPBELL MACHINES

Wet Abrasive Cutting Machines, **Nibbling Machines**

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WILSON MECHANICAL INSTRUMENT DIVISION



Wright Hand Hoists, Speedway Electric Hoists, Cranes

WRIGHT HOIST DIVISION



Reading Electric Steel ACCO Malleable ACCO CASTING DIVISION



MARYLAND **BOLTS** and NUTS

THE MARYLAND BOLT and NUT COMPANY



OWEN SPRINGS

Springs and Units for Mattresses and Furniture OWEN SILENT SPRING DIVISION

Serving Industry Transportation Agriculture and the Home



BRIDGEPORT 2, CONNECTICUT

Watch Those Contract Clauses

P URCHASING AGENTS tell us that it's getting harder and harder to get acknowledgment copies of their purchase orders returned from some vendors. Instead, they are receiving vendors' sales and contract forms, with the explanation that it is the policy of these suppliers to do business only on the basis of their own forms. That wasn't their policy a year ago. The reasons for the change can usually be found on the back of the sheet.

We have yet to find an instance where the standard terms and conditions of purchase orders, which were perfectly acceptable to sellers only a few months ago—and under sellers' market conditions—have been altered in any particular. But some of the sales agreements being offered in their place are somewhat less than acceptable to buyers.

The fine print clauses are coming back. In many cases this means that the whole transaction must be referred up to the top echelon in purchasing, or to the legal department, for analysis and decision. In one large purchasing office we were shown a stack of vendors' contract forms three inches high awaiting legal opinion. They represented a sizable chunk of business pending. But there are long delays ahead, and a whopping lot of negotiation to be done, before some of them are cleared. And all the while we have been laboring under the impression that this is a tough competitive business period, with every effort bent toward cultivating the customer and maintaining sales volume. Who's getting tough now?

Reversion to fine print is a serious step backward in purchasing-sales relationships. It wipes out the hard won advances of many years toward better mutual understanding and confidence and reasonable business practices. It is forcing purchasing people to dust off the old "Caveat Emptor" signs that used to hang where they now remind themselves to "Think". Perhaps, under the circumstances, they mean pretty much the same thing. The trend is particularly ill timed in a period when—if anyone is to call the tune—it would seem to be the buyer's turn.

We do not presume to tell any business what its sales terms and policies should be. It is part of our job to counsel purchasing men. Our advice is: Watch those contract clauses! Some of them you may not like. But if what sellers tell us is true, about the present competitive market, you will probably find plenty of sources still ready to do business on the basis of a simple order form that sets forth the elements of the agreement in clear type, and on one side of the sheet.

Stuart F. Henritz

Waste makes Haste



with **New Departure** on the job!

A New Departure ball bearing carries loads and assures exact alignment—in Given Manufacturing Company's Waste King Pulverator.

Fast-working kitchen helper! One that never grumbles at the garbage chore! It's the Waste King Pulverator-which makes use of the dual load-carrying ability of a New Departure ball bearing for quick, efficient waste disposal.

This New Departure supports the upper end of the motor shaft—carries both radial and thrust loads imposed in cutting food waste. It assures exact maintenance of the close relationship between the rotating blades and grind ring.

Find out how New Departure ball bearings can improve your product. Talk with your New Departure sales engineer today.

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PHILADELPHIA 850 E. Luzerne St. Garfield 3-4136 SYRACUSE 2360 James St. 73-5195

DETROIT
7-122 General Motors Bldg., Trinity 2-4700
CINCINNATI 2107 Carew Tower, Main 5783

CLEVELAND 3113 W. 110th St. Winston 1-5454 INDIANAPOLIS 1357 W, 18th St. Imperial 4680 PITTSBURGH

Cathedral Mansions Mayflower 1-8100 CHICAGO 332 S. Mich. Ave., Wabash 2-5875 DAVENPORT 2212 E, 12th St. Davenport 7-7522

KANSAS CITY
1021 E. Linwood Blvd. Valentine 4939

MILWAUKEE 647 W. Virginia St. Broadway 6-9460 ST. LOUIS 3001 Washington Blvd. Franklin 6533

LOS ANGELES 5035 Gifford Ave. Logan 8-2301 BERKELEY 1716 Fourth St., Landscape 6-8750 SEATTLE 5000 First Ave., S. Lander 5920

NOTHING ROLLS LIKE A BALL BALL BEARINGS NEW DEPARTURE . DIVISION OF GENERAL MOTORS . BRISTOL CONNECTICUT

Highlights

This issue's important features summarized for the busy reader



What's the biggest obstacle that stands in the way of the purchasing agent who is trying to do a better job? Close to the head of the list on most buyers' answers to this question would be the limitation of time at their disposal. Just so many hours in the day—and so many things

to be done. No time left for the extras that make the difference between ordinary competent procurement and really superior performance. But there is one way to attack this basic problem. Perhaps we can Make Time for Better Buying. Impossible? The practical article on page 77 tells how.

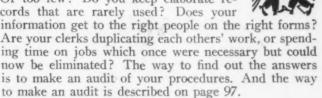
It makes no difference whether yours is a **Small or Big Company**, a standardization program can be made to work effectively and profitably in your operation, and the purchasing department is a logical place to start it. The double barrelled article on pages 82 and 83 brings you the experience of a representative small company buyer and a big one, in respect to standards.

The Purchasing Manual may be an imposing volume, covering every detail of policy and procedure with meticulous care, and expressed in faultless prose. But it's no good unless your people read it, understand it, and use it. Turn to the story on page 72 for some helpful tips on how to write a manual that will accomplish these objectives. Simplicity is the keynote—in content, language and typographical arrangement—plus the application of some fundamental psychology in the way you present the necessary instructions.

There has been a great deal written on the subject of **Public Relations** in purchasing. But it has seldom been done so concisely, so specifically, and so directly to the point as in the "Do and Don't" summary on page 90. Test your practice by this yardstick.

No conscientious seller advocates special models when standard equipment will do the job. But in the case of materials handling, there are many special situations where **Special Trucks** or attachments will provide the most efficient and economical solution to the buyer's problem. The article on page 94 proves its point with a series of illustrated case studies from a variety of industries, where special trucks are used to advantage. Can you use one or more of these ideas?

It has frequently been observed that a properly functioning purchasing department can be recognized by the efficiency of its Paper Flow. Do you make too many copies of your key purchasing forms? Or too few? Do you keep elaborate records that are rarely used? Does your



Costings are among the most commonly purchased items in manufacturing operations. Where the volume of requirements is significant, this phase of buying may deserve special attention. An experienced buyer of castings shares his know-how with you on page 69.

A Small Purchasing Staff can accomplish a big buying job when responsibility and authority are delegated to the buyers. The article on page 115 describes one such successful operation and how it works.

A lot of compromises and bad decisions, and failures to act, are blamed on what "They" will think and say. Who are these mysterious "They", and how can we face their insidious influence? Turn to page 111.

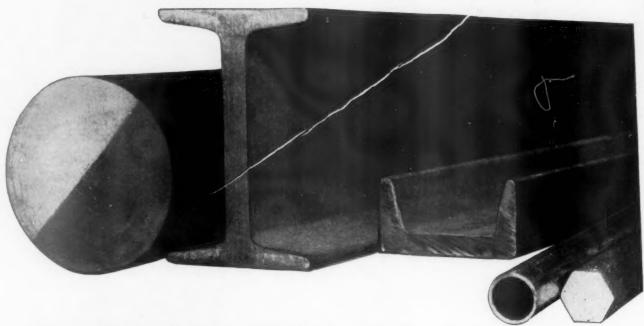
Don't overlook these regular monthly departments, compiled for your information: the Washington Report (page 13); New Catalogs (page 17); New Equipment and Products (page 128); News of Your Suppliers (page 22), of Association Activities (page 184), and of Men in Purchasing (page 248). Keeping up to date on such developments makes for better buying.

COMING-AN IMPORTANT NEW SERIES

Comprehensive, first hand survey studies of purchasing organization and methods in progressive companies—starting in an early issue

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Quick delivery from world's largest stocks

Whether you need a single piece or a truckload you can depend on prompt, personal service from your nearby Ryerson plant. So, for every kind of steel—when you need it—call Ryerson.



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Principal products in stock: bars, structurals, plates, sheets, tubing, alloy & stainless steel, reinforcing, etc., also machinery & tools

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK . BOSTON . PHILADELPHIA . CHARLOTTE, N. C. . CINCINNATI . CLEVELAND. DETROIT . PITTSBURGH . BUFFALO . CHICAGO . MILWAUKEE . ST. LOUIS . LOS ANGELES . SAN FRANCISCO . SPOKANE . SFATTLE

For More Information Circle No. 257 on Inquiry Card-Page 17



By Oscar P. Ketter, Buyer

The Oilgear Company Milwaukee, Wisconsin

Abstract of an address given before the Wisconsin Chapter of the American Foundrymen's Society

S OME BUYERS of castings mere-ly look at a requisition, determine the pattern location, and proceed to issue a purchase order for the quantity required. What happens after the order is issued is, perhaps, a complete mystery, because of lack of knowledge of foundry techniques and processes, and perhaps such a background is unnecessary for this type of buying. It will usually follow that the end use of the castings is such that very little, if any, of a problem exists with respect to quality. In situations of this kind, the buying is a perfunctory, routine operation.

However, as the casting problem becomes more complex, more knowledge of both the foundry processes and the end use is of increasing importance. When we reach the point where it becomes necessary to evaluate each purchase item, we also pass from routine to a more specific buying function. The buyer places his orders with a better than average understanding of the end use for the castings he is buying. Also, at least a basic knowledge of melting, core making, molding, core setting and cleaning becomes necessary. The extent to which this knowledge should be developed will. of course, depend on the complexity of the parts and the quality required.

Basis Records

Just as in any phase of a business, it is necessary to maintain



O. P. Ketter

adequate records which will provide the information needed to assist in forming opinions and making decisions.

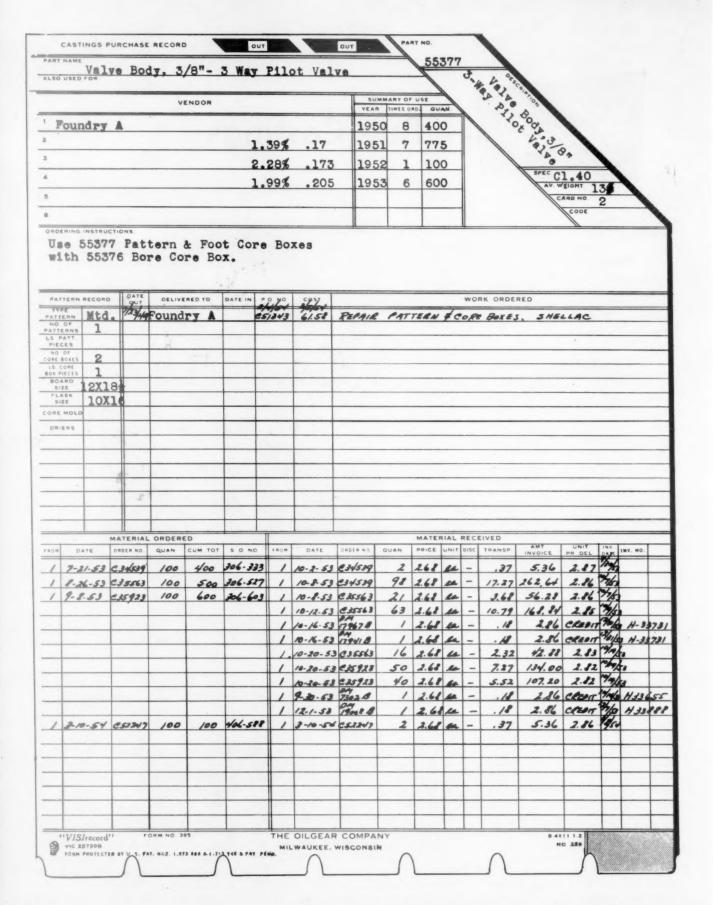
We maintain a card record for each item of castings we purchase. It has been drawn up to meet all of our requirements and to give us a complete history of the part. It provides space for the usual information such as the part number and name, material specifications, and average weight. It also allows room for the names of five vendors. We have inserted a column for entering an annual summary of purchases, showing the number of times a part is ordered in a year and the quantity ordered in that same period.

Ample room is provided for listing ordering instructions to help in obtaining exactly what we need. We may find here such comments as "Cool in mold to room temperature" or, in the case of combination pattern equipment, we will find "Use pattern number with core box number for bore." These instructions will, of course, be noted on the purchase order

Below this, we have built into the card a pattern record, listing the pattern equipment available to produce a part, with a record of the movements of the pattern; the last entry shows the current location. We also record work which is ordered on the pattern itself, whether merely repairing and shellacking or a major engineering change.

The balance of the face of the card and a good portion of the back is devoted to the entry of each purchase order issued, receipts and invoices, and credits. At the end of each year, the purchases are added to the summary, with the unit price, per pound price, and scrap factor for the same period. The scrap factor is based on the number of pieces rejected—either returned for credit or reworked.

Defects are reported to us by the



Oilgear's castings purchase record is kept on $8\frac{1}{2} \times 11$ " VISIrecord cards. Complete usage and ordering information is included, together with pattern record for the part and itemized record of purchase orders. The record of material ordered and received is carried over to the reverse side of card.

inspection department and are relayed to the vendor by a letter and marked blueprint. These complaints are recorded on the back of the card, and are also noted on the purchase order if they are fairly current.

This record has been developed so that a complete record of performance is available, and the part can be purchased rather than merely ordered. It permits us to analyze any part at any time to determine the performance we are obtaining, without referring to numerous other records.

Placing the Order

Upon receipt of a purchase requisition, the record for that part is reviewed from the standpoint of cost and quality. It is presumed that current prices reflected in the record are satisfactory; nevertheless they are checked with each new requisition, since this is one of the prime factors in which management is interested. We convert all prices to a "per pound" basis for easy comparison with similar jobs placed with different vendors.

When a job seems high in price, we again review it to determine a possible reason. The blueprint and pattern record are checked to see, for example, whether the design necessitates complex pattern equipment. In a situation like this, we will work with the vendors to find out how the job can be simplified from their standpoint, and then with our own engineering department to effect the changes necessary to achieve lowered costs.

When the scrap factor is found to be high (we consider 21/2%, by pieces, to be excessive), and particularly when it is a continuing item from year to year, we again check into complaints and vendors' comments. Notations on the card record prove helpful in deciding whether to go along with the current vendor or whether the time has come to place the job with another foundry. We do not switch jobs readily, preferring to work out the problem with the current vendor. In any evaluation of scrap we must, of course, make allowances for those jobs which, by their very nature, will be potentially high in scrap.

After reviewing these pertinent factors, any ordering instructions or comments regarding defects are noted on the requisition and it is priced and processed for typing.

While the record card gives necessary information on a specific part, some other means must be

provided to evaluate each vendor's performance. For this purpose we have a simple report form on which we enter from the invoices the number of castings billed, weight, total dollar value, and average price per pound (using actual cost, disregarding such items as freight, bags or containers, and test bar charges). Included in this report are the number and weight of castings found defective, from which we compute the percentage of scrap loss by weight and by pieces. Defective castings which are salvaged because of the amount of machining time in them when the defect is found are included as scrap castings. This report is maintained on a monthly basis, totaled at the end of the year. It gives us an opportunity to evaluate each vendor's performance as well as our own.

Factors of Price

It is evident from the foregoing that cost and quality are the prime considerations.

The foundry business being what it is, prices cannot be gauged as they can in the buying of staple commodities and catalog items. The pattern equipment which is furnished determines how a job is to be made, and it may eliminate the possibility of producing a casting in the most economical manner.

Many factors affect the price of a casting. Metal specifications determine the cost of raw materials and alloys to be used. Design of the part contributes greatly to the cost, particularly if it requires many and intricate cores. Finishing operations, too, may add to the cost since heavily cored jobs require much more time than a simple tumbling operation.

While we convert all our prices to a per pound basis for purposes of analyses, we prefer to buy on a per piece price. More and more foundries are recognizing the need of a good cost system. They can more thoroughly and accurately price a job, and each job is priced on its own merits. The relatively simple job does not carry the burden that it does when an overall per pound price schedule is used. The schedule pricing method hides from the foundryman his true cost picture. In many cases, it will serve only to drive out the simple jobs, leaving him with the most difficult work with high costs that will eventually require correspondingly high prices.

The per piece price also helps in the handling of invoices and credits, by eliminating the ever present dif-

ficulty of recomputing prices in the purchasing department due to weight variations. (There are several reasons for such variations. Sometimes, after a particularly laborious weekend, the molder finds it difficult to exert himself on Mondays or even Tuesdays, and we get loosely rammed molds with consequent swelling. As buyers, we are not too fond of paying for this extra weight and encouraging a repeat performance on the following weekend.)

Practice in running jobs varies from foundry to foundry. Sometimes a foundry will maintain that best production and prices can be obtained from using two patterns on a board, when actual checks reveal that a much better price will result when four patterns are used. Each part or job must be studied before making such decisions. Mounting too many patterns may result in using a flask size that requires ramming an excessive volume of sand; mounting too few could have the same result, even though a smaller flask is used.

Machining Losses

Beyond the actual cost of a casting lies the lost cost of machining defective castings. Neither foundry nor shop likes to produce scrap. But effective follow-through is needed to solve a problem of this sort and to keep it solved. Machine time is a scarce commodity when activity is high, and lost time cannot be replaced. Now, with some clear spaces in shops, it is imperative that we keep all machines producing good pieces. Our sources must produce usable castings.

Some experiences are frustrating. On one job a core shift occurred and a considerable number of castings were lost when machined 70%, representing a machining cost of \$30 per piece. The producer made a searching check on the job and could find no way in which the core could shift. The telltale was perfect, the core fit the prints in the mold and could not be made to twist in any way to reproduce the defect. He checked the contour of replacement casting, to be made immediately, for a shift. With all this background, and within 10 days, another run of castings was found to have the same defect, although they were shipped as good pieces after checking. Only a checking gauge, used at the insistence of the buyer, prevented further scrap. The producer does not know to this day what went wrong with the job.

(Please turn to page 344)



How To... Write a Manual That Will Be Used

By Roy E. Saye

Purchasing Agent, Mississippi State College, State College, Miss.

RITE YOUR PURCHASING MANUAL in the language of those who use it. Then it will be studied and remembered. Grammatically perfect English prose is not enough. Your staff people must read what you write, and understand what they read, or you have failed. You have wasted time, energy, ink, and good white paper.

Write so your readers not only may but must understand. Use simple words like you hear in everyday usage. Words in themselves are meaningless unless they create a mental picture or image in the mind of your readers. You are writing your manual to give instructions on purchasing procedures, not to educate or impress your employees with your vocabulary.

Simple Language

At least 70% of the words used in your manual should be one-syllable words. Technical words of the trade are permissible, for they have special meanings and are understood by your readers, but long words should be used sparingly if you hope to write easy-to-read instructions. Practically all celebrated and memorable writings are simple. They have 70% or more one-syllable words.

Check the Lord's Prayer, and you will find that 72% of the words are one-syllable. In Lincoln's Gettysburg address, 196 of the 268 words are one-syllable, for a percentage of 73 plus. The 23rd Psalm, Shakespeare's "All the world's a stage", and the most widely read newspapers and magazines all have over 70% in one-syllable words.

The complicated, high-flown "gobbledegook" of many governmental

publications shows you what to avoid. The story of the foreign born plumber who wrote to the Bureau of Standards is a fine example of why you should use simple words. This plumber told the Bureau he had found that hydrochloric acid did a good job of cleaning out clogged drains. The Bureau warned him that "Efficiency of hydrochloric acid is indisputable, but the corrosive residue is incompatible with metallic permanence." The plumber courteously replied he was glad the Bureau agreed.

Again the Bureau wrote him: "We will not assume responsibility for the production of toxic and noxious residue with hydrochloric acid, and suggest you use an alternative procedure." Again the plumber expressed his happiness at the Bureau's agreement with his

Finally, in desperation, the Bureau wrote in the language of the plumber: "Don't use hydrochloric acid. It eats hell out of the pipes."

Needless to say, the plumber understood this time.

Active, Positive, Present

Use active verbs, not passive ones, in writing your manuals. Active verbs keep your subject moving, not standing still. They not only bring your sentences to life, but shorten them as well. Say: "Check unit prices and extensions on all orders," not "Unit prices and extensions should be checked on all orders."

Keep your verbs in the present tense. History is written in the past tense. The present tense is up to the minute. You-and your readers-are interested in what is going on today.

Business instructions are made up of DOs and DON'Ts. Wherever possible, use the positive approach. Negative ideas are bad in that they emphasize the things you don't want to emphasize. "Do not enter the date" is negative; "Leave the date blank" is the positive way of saying the same thing. Positive ideas help you keep from having to say something unpleasant, or saying it in an unpleasant way. Workers appreciate clear directions, but tend to resent prohibitions. "Do not call vendors to get prices on supplies you need" is a negative approach. Accent the positive, and say: "Call the Purchasing Department for prices on supplies you need." Expressing it this way actually says more, for in addition to ruling out the wrong procedure, it tells the employee what to do.

Short, Direct Sentences

Use short sentences. Most sentences should run twenty words or less. The simplest and soundest sentence form ever invented is the straight subject-verb-object order. Qualifying clauses and parallel ideas are much easier to understand in separate simple sentences.

Traditional business English is full of round-about way of saying simple things, without adding anything to the meaning. Cut wordy phrases to the bone:

Avoid Use in the amount of for with regard to about enclosed herewith enclosed attached hereto attached in the event that

Dozens of such phrases have oneword substitutes.

			-6-
Purpose Responsibility Salesmen Requisition Routine Orders Emergency Orders Confirming Orders Purchases for \$10 00 or less Bids Quotations Branch Experiment Stations Central Duplicating and Supply Building Electrical and Plumbing Supplies The Book Store Purchases from Other Departments Post Office Box Rent Postage Stamps and Envelopes Government Printing Office Purchase Orders Invoices Receiving Station Receiving Reports Book Store Receiving Reports Broken or Damaged Shipmenta Correspondence with Vendors Follow-Up on Orders Building Repairs and Alterations Blank Forms Surplus Equipment Cylinder and Drum Deposits Truck Repairs Supplies and Equipment Contract Purchases Personal Purchases Personal Purchases Taxes Priorities Catalogs Thomas' Register Telephone Directories Suggestions	Pugs 1 1 1 1 2 2 2 3 3 3 4 4 4 5 5 5 6 6 6 7 7 7 8 8 8 8 9 9 9 10 10 10 10 10	RECEIVING STATION: RECEIVING REPORT:	Invoices on purchases for departments of the College are received from vendors by the Purchasing Department. They are forwarded daily to the Comptreller for payment after the shipment has been received. Your duplicate copies of the invoices are forwarded to you through the Receiving Station. Departments of the Experiment Station and the Extension Service receive all copies of the invoices direct from the wendors. Shipments for Departments of the College and Experiment Station are received by the Receiving Station. Your purchases will be delivered to your department by the Receiving Station. Large or heavy pieces of equipment may be delivered by the Truck Line at the direction of the Receiving Station. Deliveries are made daily. All shipments are given careful and prompt attention. The Receiving Station does not open and check all shipments. Sign a Receiving Report or Temporary Receipt when the Receiving Station delivers a shipment. Sign the pink Receiving Report Copy of the Purchase Order If you are sure the shipment is complete. Use a Partial Delivery Receiving Report. Form P-3, for partial shipments on College orders. Fill in the name of your Department and your Account Number. Show the invoice number, date of the invoice, and amount of the invoice, in you have one. List all item receiving Report and send it to the Receiving Station, Box 337, Campus. Return the pink Receiving Report Copy to the Receiving Station with your Partial Delivery Receiving Report. The pink copy will be returned to you when the balance of the order is delivered.

The Mississippi State College purchasing manual consists of only 10 pages of simple instructions, plus specimen forms. Yet the detailed index page is important for maximum reference value.

Speciment page of the manual. Type lines are kept short for readability. Margins are utilized for quick reference headings beside the paragraphs.

Write as you talk. Ask yourself: "How would I say it if my readers were sitting across the desk from me?" You may not want to write 't exactly as you talk, but a polished-up version following this principle will make for easy reading. Use simple, direct English, and stay away from any special lingo or jargon.

Be as considerate in your writing as you are when you talk face-to-face. Write your manual without the use of such terms as "You will date all orders" or "You must check invoices for accuracy". It's much better to say "Date orders" and "Check invoices", leaving the "will" and "must" out of your instructions. Workers are usually eager to know and to conform to proper methods, but they don't like to feel that they are being forced to do something.

Physical Appearance

The physical appearance of your manual may well determine how much of it will be read and how often it will be consulted. Attrac-

tive binders with titles printed in contrasting colors invite attention. Good color combinations are possible with light colored binders and dark colored ink.

Keep the title of your manual brief. We call ours "Purchasing at Mississippi State College". That's short, simple, and to the point. We might have called it "Manual of Policies and Procedures for the Procurement of Supplies and Equipment for Use by Instructional and Operating Departments of Mississippi State College". The advantages of the shorter title are evident.

Plastic or spiral binding will add color, prestige, and utility to your manual. This type of binding is fairly inexpensive. Manuals bound with it are easy to open, and lie flat on desk tops. Loose leaf binders are sometimes best where instructions must be revised frequently. However, they are expensive, the rings make them bulky, and pages tear out easily unless reinforced. Also, the covers can't be printed with ordinary mimeograph and offset equipment.

Black ink on white paper offers

the best color contrast. That is one reason why most newspapers, magazines, and books are printed on white paper with black ink. Colored paper costs a little more than white, and there are few, if any, good reasons for printing purchasing manuals on colored paper.

For Easy Reading

Keep your reading lines short. Your daily newspaper is printed in columns to keep the reading lines short. For reproduction from type-writer type, the lines in your manual should be about 4 inches long for elite type and about 5 inches for pica type. This leaves 3½ to 4¼ inches for margins on standard letter-size sheets. These margins can be effectively used for subject headings alongside the various paragraphs.

Pica type is larger and easier to read than elite type. It is best for short manuals. Executive model electric typewriters that type with what is known as "proportional spacing" are excellent for manuals. The type is clear and easy to read. It

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Specimen forms are filled out to illustrate proper procedure. They follow a typical transaction through its various stages.

presents a pleasing appearance similar to a printed page.

Your manual should provide a table of contents, an index, or both. A table of contents is useful in presenting the scope and arrangement of your manual. Long manuals should have an index that is completely cross referenced, so that your employees should be able to find anything they are looking for under two or more appropriate headings. Indexes may be at the beginning, right after the table of contents, or at the end of the manual as found in many catalogs and books.

Illustrate Procedures

Use illustrations in your manual. Keep in mind that "one picture may be worth a thousand words". Include a sample of each form mentioned. A form with the entries made on it, to show the correct way to fill them in, is more valuable than a blank form. These forms may be scattered through the manual as they are described, or all forms can be grouped in the back of the manual, with a covering index and cross references in the text.

Some forms are too large to be included in manuals without awkward folding, and others are so small they will not stay in place. Replicas of forms can be printed by offset, and the form can be reduced or "blown up" to the desired size by this method. Entries are written or typed on the forms before they are photographed for making offset plates. The replicas then include the entries, which are reduced or enlarged the same as the forms. Offset printing makes it possible to reproduce forms or pictures in small quantities at reasonable cost.

Ideas for Back Cover

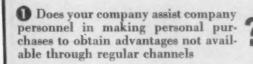
The back cover of your manual is a choice space for presenting related information. A map of the college campus is printed on the back cover of our purchasing manual. All buildings are outlined and named. New employees find this map helpful, and in many cases it keeps their attention on the manual.

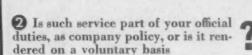
Your purchasing manual is written with a purpose. The suggestions here given will help to accomplish that purpose more effectively. Be sure to keep within the dictates of good taste in writing and in binding. It is just as important to be well groomed in your writing as it is in your appearance. If you are not, even your best friends won't tell you.

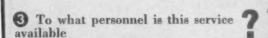
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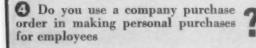
Should Purchasing Agents Make PERSONAL PURCHASES For Company Employees?

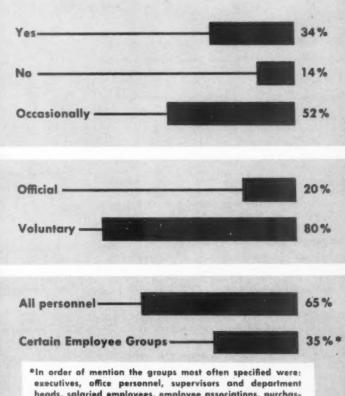
The company purchasing department is a logical place for the discountconscious employee to seek help in getting a "better price" on his own purchases. Some firms encourage the practice, others tolerate it, a few prohibit it. Personal purchasing through an official company department raises a number of questions about employee, supplier, and community relations, and departmental efficiency. The holiday season is coming and requests for personal purchasing are increasing. We asked purchasing men for their experience with and views on the subject.

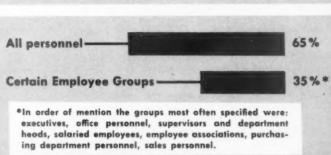












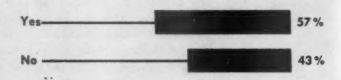


Do you make a "handling charge" to the employee for making personal purchases

6 In your opinion, what is the "public relations" effect of a policy of making personal purchases

	In company	relations w	vith:
	Employees	Vendors	Local Merchants
Good	71%	26%	10%
Poor	8%	18%	42 %
No effect	21%	56%	48%

Do you feel that the advantages gained by making personal purchases outweigh the disadvantages



-WHAT THEY SAY

"It is my opinion that if one is not careful the employees are prone to consider this as one of their rights, and not a privilege."

"Savings through company purchase must be sufficient to justify the time neded to handle them. Our policy is that the saving to the employee must be at least \$5.00."

"While the Illinois law against such purchases has been ruled unconstitutional as regards employees' tools, it has never been tested on other types of merchandise. So we are very wary of making such purchases for employees."

"When someone gets something below average list price he can't keep his mouth shut - just has to let everyone know about it. Then we get in hot water!"

"These purchases are made primarily with vendors who have sought the business. Eventually most of their companies do not require purchase orders, but extend our discount to employees if the employees say where they work.'

"There are so many discount houses now operating that we get very few calls for any purchasing through the company.

"Since there are so many catalogs available to employees we feel that an occasional purchase causes no harm. Frankly, I doubt that local merchants in any given city will ever defeat "cut rate" chases until all mail order houses go out of business. And I do not believe that will ever happen."

"We assist employees by advising firms that want discount business and will accept it without a formal purchase order. We do not spend extra time on employee purchases."

"The 'public relations effect' in respect to employees makes for easier introduction and adoption of new materials, methods and equipment."

"Our high dollar limit for buying through the company results in very few personal purchases.

"If all (oil) companies in this area (Tulsa) purchased for employees at a discount, the merchants would have to increase their prices to take care of discount and still make a profit.'

"Tools and equipment owned by employees and used partly in performance of their jobs are considered an exception and can rightfully be purchased through company channels."

"In a company of our size (approx. 500 employees) this extended consideration is not, in any way, a burden.

"We try to provide the personnel department with a list published for the benefit of employees seeking discount merchandise. This avoids burdening the purchasing department with requests."

"Too much trouble-especially with women employees who want to buy everything wholesale."

"Official purchasing for salaried employees has been maintained due to the opinion that salaried income as a rule is lower than that of production workers. Management has given the privilege of the help of our purchasing department as an incentive to the white collar workers. All purchases are controlled by purchasing and the privilege is carefully handled to avoid abuses

"We attempt to limit purchases to those that will cause very little or no friction with local vendors.

"Purchasing (in our firm) is operating with a small crew now and overtaxing them will hurt company purchasing which is our first job."

"90% of the time we refer the employee direct to the vendor and let him make his own 'deal'.'

"We limit purchases for employees to large items-\$25.00 or more."

"Employees do not appreciate the service and in many instances do not like the merchandise or lack of service available on appliances, etc."

"We do not insist a vendor sell our employee if the vendor prefers

"Our employees have stated that our help has increased their standard of living by amount of purchase-savings."

How To. • Make Time for Better Buying

By C. W. Parezo, Purchasing Agent, Motor & Control Division, Westinghouse Electric Corp., Buffalo, N.Y.

This discussion is abstracted from a visual chart presentation prepared for a Westinghouse buyers' conference and subsequently repeated at a meeting of the Buffalo P. A. Assn. Assisting in the presentation were Asst. Purchasing Agent D. C. Weisenstein and Buyers K. A. Wolfe, H. Z. Vance, and D. E. Thompson, all of the Buffalo Motor & Control Division.

As the budget belt is being tightened and we enter that long awaited buyers' market, buying for a profit is of increasing importance.

The most often heard reason for not being able to do a better buying job is the lack of time. If we only had

More time to CONCENTRATE!

More time to INVESTIGATE!

More time to NEGOTIATE!

But how do we catch up with this elusive intangible—TIME to do the things that make for better buying? Some of the answers may be in new

ideas, but many of them are in the category of "old stuff"—ideas we have read about, thought about, and talked about—but may not have put into practice.

We can't make time, but perhaps we can use the time we have to better advantage. At Buffalo, we are trying to save time by taking time to investigate, initiate, and improve our work habits and practices. We have found it well worth while to review some of the old, familiar principles with a view to applying them specifically to our own situation. For example:

Planning



How many of us, at the end of each day, can admit to ourselves with a clear conscience that we are satisfied with the results of our day's work? If your experience is typical of ours, the chances are there are not many. Why? Because we just didn't find time.

In reviewing our accomplishment (or lack of it) don't we generally find that more and better planning would have helped materially?

How many of us look ahead—a day, a week, a month, or a year?

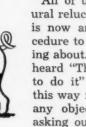
Do we determine what we want to accomplish over a certain period and set up time tables for the completion of various parts of our projects?

At the end of each day, do we segregate our work in such a way that we know exactly what we intend to do tomorrow?

Do we have a systematic approach for routine or recurring functions?

Sure, interruptions and special problems will give us temporary set-backs, but if we plan soundly and then just be doggone stubborn about breaking those plans, we will find more time to do the things that used to seem impossible.

Systems



All of us seem to develop a natural reluctance to change from what is now an orderly system or procedure to one which we know nothing about. How many times have we heard "That's not the way we used to do it" or "We've been doing it this way for 10 years and never had any objections"? We have started asking ourselves such questions as:

Is it important to post all our orders to the purchase history records?

Can we omit posting non-repetitive maintenance items?

Can we use any of the new type

visible record systems for pricing history and expediting?

Where can we use traveling requisitions to best advantage?

Systems are like the rules of a game. We know the overall idea of the game and devise the rules so it will run more smoothly. The difficulty is that the nature of the game changes over a period of time, but we forget to change the rules to keep pace. For this reason we're trying to back off and evaluate everything that we now have and do in the line of operational routine and systems.



Blanket Orders

The advantages of blanket orders have been proclaimed far and wide. That they can save valuable time in processing requisitions and invoices, help to do a better expediting job, and eliminate paper work in many other departments is undenied. Yet, how many opportunities for using this valuable tool are we passing by?

For example, have we fully explored the possibilities of using this ordering system, not only for volume items, but also for those numerous expense purchases made daily from jobbers? Why not a blanket order for each of our major jobbers-or possibly for specific commodity groupings from each supply house? Here may be an excellent way to eliminate many of the annoyances and time consuming features of nuisance buying.



Petty Cash Buying

With proper controls and policing by Purchasing, why can't we eliminate many of those nuisance requisitions that interrupt our daily buying routine even on items normally considered above the petty cash value? Let the authorized laboratory technician or maintenance man pick them up against an established purchasing cash account, reducing the volume of small orders, invoices and needless material handling by the

Receiving Department.

Sometimes these special items are hard to get promptly. In many instances these men may know a usable substitute immediately available, which, if we were to purchase, would necessitate a time loss in checking its applicability. Urgent breakdowns can be repaired much faster by use of this method, providing more time for negotiating the items that really count.



Purchasing Manual

All of us are faced with the necessity of concentrating on most important things first. Consequently, how many of us have actually spent the time required to develop a Purchasing Manual that really serves the purpose for which it is intended?

How many times a day does a clerk, expediter, or assistant buyer have to interrupt the buyer to get a decision on a buying routine or a clerical function? Reference to a well planned manual can give the right answers quickly to a great many questions.

At first glance, one might discount the value of a manual as a contributor to saving time. However, we can't deny that any questions resolved through the manual will:

(a) Result in fewer interruptions and more time for the buyer.

(b) Help to keep routine work slotted in the lower classifications of personnel.

(c) Afford a more effective means of indoctrination and training of purchasing personnel.



Delegating Responsibility

Perhaps one of the best ways to save time for improved buying is in delegating responsibility. We may think that we are taking full advantage of this prerogative now, but have we really analyzed these questions:

Are we delegating responsibility without that necessary accompanying authority?

Have we clearly defined who is responsible for what?

Have we measured out those responsibilities according to the individual's capacity?

Do our people know what it means to delegate responsibility, or do they just give some one a job and then feel they have learned the secret of this important function?



The Right Man for the Right Job

Hand in hand with delegating responsibility is picking the right man for the right job. Have we seriously studied every man in our department to determine if his characteristics, abilities, and background are well suited to the job he is now on? Or would his talents be more productive for the company (and consequently for himself) if he were employed in the office next door?

John Doe, the raw materials buyer, is a master at detail work. He does a beauty of a job on price records, handles orders promptly, and really ties down those specifications. But somehow, he just doesn't have the knack of handling long range, involved programs. That new man, Bill Smith, has had a few chances to show that he would be a natural for those major long range projects, but Bill is buying component parts and sundries. Why not switch the two men? The good qualities of both would be used to better advantage. Result: more time for improved buying.



Our Friend—the Salesman

Here is a major time consumer for all of us-the day-to-day duty and privilege of interviewing salesmen. How many of us know how much time a buyer spends on this phase of his job? A recent poll conducted by PURCHASING Magazine reports estimates varying from 20% to 50%. A reduction of 20% in the length and number of interviews would mean 30 to 60 minutes added to a man's buying time each day. Our experience, and probably yours, too, is that we can diplomatically regulate and shorten the salesman's visit without sacrificing the end results or supplier relations.

How many of our buyers take full

advantage of the opportunities available? Here is one of the best sources

- (a) Current lead time information.
 - (b) Market trends.
 - (c) New Products.
 - (d) Cost reductions.

Do our callers render a real service every time they stop, or do they just drop in to pass the time of day and talk about that last fishing trip? Do they expedite for us and see that we are getting the kind of service we need? A good salesman can be one of our best assistants—a poor salesman, one of our worst consumers.

The Law of

Contributory Infringement

By Albert Woodruff Gray

Patent law is far reaching in its protection to inventors and owners of valid patents. It extends to components, replacement parts, and machinery for reproducing patented products or processes. Infringement is not limited to the manufacture and sale of infringing products, but covers their use as well. The purchasing agent must be doubly on guard, searching not only his own company's intents and actions, but those of his supplier in purchases which may seek or unwittingly serve to "beat a patent".

PATENT was issued in a famous case many years ago to the inventor of a combination of burner, chimney and other parts of an oil lamp. A manufacturer other than the inventor looked upon this invention, found it good and began making and selling merely the burner of this lamp patent. It neither made nor sold the other parts of the lamp.

The patent owner sued the manufacturer for infringement and in its defense the manufacturer contended that merely making one of the elements of a patented combination such as this did not constitute an infringement and hence, having made and sold merely the burner it was not liable for an infringement of the patent which applied to the whole combination.

The Basic Decision

The United States Circuit Court of Appeals in sustaining an injunction against these acts said in its decision, rendered over eighty years

"It cannot be that where a useful machine is patented as a combination of parts, two or more can engage in its construction and sale and protect themselves by showing that, though united in an effort to produce the same machine and sell it and bring it into extensive use, each makes and sells one part only, which is useless without the others, and still another person, in precise conformity with the purpose in view, puts them together for use. If it were so, such patents would, indeed, be of little value. In such case all are wrong-doers, engaged in a common purpose to infringe the patent and actually, by their concerted action, producing that result."

Principle Is Reaffirmed

The Senate Report on the bill that became the United States Patents Act on July 19th, 1952, said of the law laid down in this decision and of the section of this recent statute relating to the contributory infringement of patents;

"The doctrine of contributory infringement has been part of our law for about eighty years. It has been applied to enjoin those who sought to cause infringement by supplying some one else with the means and directions for infringing a patent. One who makes a special device constituting the heart of a patented machine and supplies it to others with directions, specific or implied, to complete the machine, is obviously appropriating the benefit of

the patented invention. It is for this reason that the doctrine of contributory infringement, which prevents the appropriating of another's patented invention, has been characterized as 'an expression both of law and morals.'

"Considerable doubt and confusion as to the scope of contributory infringement has resulted from a number of decisions of the courts in recent years. The purpose of this section is to codify in statutory form principles of contributory infringement and at the same time eliminate this doubt and confusion."

The section of the recent patent law to which reference is made in this report is:

"Whoever sells a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be specially made or specially adapted for use in an infringement of such a patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer."

This offense of contributory infringement was defined in the decision of an action for the manufacture of parts for a patented refrigerating expansion valve by one not the patentee, as, "Intentional aid or cooperation in transactions which collectively constitute complete infringement. For example, where a person furnishes one part of a patented combination, intending that it shall be assembled with the other parts thereof, and that the complete combination shall be used or sold.

"Before one can be held for contributory infringement he must knowingly have done some act without which the infringement would not have occurred; at least either he must know that the element he sells will be used in the patented combination or the element must be adapted for no other use."

Machine Infringes Process

A recent lawsuit of this character in which this offense of contributory infringement was charged involved a patent that had been granted for a process of manufacturing a fiber product from wood. An Ohio corporation undertook the manufacture of a machine for grinding wood pulp of this character. The patentee contended in this suit that if these machines were manufactured and sold with the intention of performing this process, such manufacture was contributory infringement and the manufacturer was an infringer.

The Federal Court in its decision of this infringement action asserted that the manufacture of this grinding machine and its sale to customers with instructions from the manufacturer of the manner of its operation was a contributory infringement of the patent and enjoined the further manufacture and sale of these machines.

A similar situation was involved in an infringement action based on a patent issued for a thermostat control of a heating furnace. A device available as a substitute for some of the features of this patented control was manufactured and sold with instructions for installation by a competitor of the patentee.

"The accused device," said the

further that one is an infringer if he makes and sells an unpatented element of a combination, knowing that it is to go into the patented invention."

Common Part—Specific Use

It by no means follows, however, that every device or machine that may be adapted for use in the patented combination makes the manufacturer guilty of contributory infringement.

Metal bars in the form of an inverted letter "U" and used in hoisting machinery were also suitable for use in a patented hoist in a case of this character. The seller of these bars was held by the Federal District Court some years ago to be a contributory infringer of the hoisting machine patent.

In granting an injunction which was subsequently set aside, the court said:

"Contributory infringement is the intentional aiding of one person by another in the unlawful making or selling or using of a third person's patented invention. He who makes or sells one or more elements of a patented combination with the intention and for the purpose of bringing about its or their use in an infringing combination is guilty of contributory infringement, and is equally liable with him who in fact organizes and uses the complete combination.

"One who makes and sells articles which are only adapted to be used in patented combinations will be presumed to intend that they shall be used in the combination of the patent."

Other Uses Not Enjoined

The manufacturer held here to be a contributory infringer, appealed. In its decision the Appellate Court pointed out that these devices which had been made subject to the injunction as contributory infringements, were neither made nor used for that purpose. In refusing to sustain the injunction that court said:

"The question in contributory infringement is whether or not the one charged with the infringement made or sold his machine or improvements with the intent or purpose of aiding another in the unlawful making, selling, or using of a third person's patented invention.

"The fact that the machine or device is capable of use in such a way as to aid in the infringement of the patented invention, that it had been used in that way, that the one thus

(Please turn to page 352)

REFERENCES

Wallace v. Holmes, 29 Fed. Cases 74, September 19, 1871

Senate Report, No. 1979, June 27, 1952. Congressional and Administrative News, August 20, 1952, page 4360

35 U.S.C.A. sec.271(c)

Detroit Lubricator Co. v. Toussaint, 57 Fed. Suppl. 837

Sprout v. Bauer Bros., 26 Fed. Suppl. 162

Mercoid Corp. v. Minneapolis-Honeywell Reg. Co., 133 Fed. 2d 811

New York Scaffolding Co. v. Whitney, 224 Fed. 452: 243 Fed. 186

Victor Talking Machine Co. v. Leeds & Catlin Co., 150 Fed. 147; 154 Fed. 58: 213 U.S. 325

The claims of the patent were: "Certain new and useful improvements in the methods of manufacturing fiber products, consisting of a method of making relatively long fibers of raw wood adapted to felt or mat under pressure to form sheets."

Federal Court in holding this manufacturer a contributory infringer, "has no other use that accomplishing the consequence of operations of the patented thermostat control. It has long been held that the owner of a patent may restrain contributory infringement. It has been held



LEONARD BUTTERS heads a 3-man purchasing department at Union Steel Products Co., Albion, Mich. The company employs about 600 people, manufactures bakery equipment and wire products. He presented this talk at a meeting of the Purchasing Agents Association of Central Michigan.

WISH my company were big enough to have a standardization program." How many times have you thought, or said, or heard some one else say that?

No company is too small for standardization. All of us have practiced it in some degree for years, often without realizing it.

Do you buy custom made shoes? Think of the excess cost of a custom bootmaker—or of a jobbing mill that rolled steel to specifications used only by you. Most of us can get satisfactory steel, as well as shoes, from manufacturers' standard specifications. Standards literally surround us. Our problem is to make efficient use of them.

The purchasing department of any business can do much to help. There is usually no need for a separate "Standards Department". Nor does anyone have to devote full time to the program. You, as purchasing agent, can and should inform your organization on available standards and encourage the use of standard items and processes. Usage of spe-

In the Small Company

cial materials and parts is usually short lived when you analyze values.

Our company operates largely on a job shop basis, but even the problems of this type of industry are pretty much standardized. We used to buy small quantities of materials and parts—not necessarily specials but items not regularly stocked in our plant. Our inventory bulged with small lots of many items. Even with perpetual stock records, the next time a similar job came up a slightly different part or material was likely to be specified and bought.

Specifications generally originate in the engineering department. After they complete their work, costs are computed and quotations sent to prospective customers. By the time the order is received and is scheduled for production, it is too late to change specifications where specified items are not on hand nor readily available.

Here is how we met our problem: We set up a small group with a long name—the Committee for Standardization of Purchased Materials. It is made up of three people, representing three functions—purchasing, engineering, and material control. It has one job—to specify what we shall carry in our inventory.

At first, our committee met a lot of resistance. We faced it by approaching each individual problem objectively, and by selling the advantages of standards. As our work began to show results, the resistance turned to cooperation.

Our first project was fasteners. We found 640 different items in stock—118 sizes of stove bolts alone. We discovered that often we were removing the nuts and throwing them away. After thorough investigation, we have reduced our number of

different fasteners to 225, and have substituted machine screws for stove bolts. The fasteners themselves cost very little, but the cost of carrying so many items in our inventory was excessive.

We turned our attention to electric lights, and found we could avoid overload on some of our lines by eliminating a 300 watt standard base lamp. The chief electrician had tried unsuccessfully to limit the use of this lamp in many locations. Now they simply are no longer available, and there are no more overloads. In this instance, our cost saving extended even to maintenance labor.

We use bar size angles. There is a wide range of sizes in this item. Our present standards lists show the sizes we will carry, the material specifications, and whether we normally buy from warehouse or mill. The same is true of wire, metal sheets, electric switches and controls, pumps, casters, weld rod, and many other products.

When our committee prepares and issues a list, we issue a copy to everyone in engineering, everyone in estimating and everyone in material control—and to anyone else concerned, including receiving and stores. It is this complete coverage that insures the final success of our efforts. If some item not shown on our standard sheets is specified, it is certain that a succession of "whys" has determined a real need for that particular item. If such a need exists, the committee has no desire to prohibit.

In our case, the purchasing department sparked the idea, and continues in an aggressive role through the committee. The master files are kept in our office, and we see to it that the lists are always up to date. Any plant, no matter how small, can apply this essentially simple plan.

with Standardization

In the Large Company

The discussion of standardization in the large company is based on the operation of the Motor & Control Division of Westinghouse Electric Corp., Buffalo, N. Y. It was prepared for presentation at a staff meeting of buyers in that organization.

A LTHOUGH ours is among the largest Westinghouse plants under one roof, we have few lines that are adaptable to mass production. A large part of our equipment is designed and built for special customer requirements.

This, of necessity, calls for many parts. For example, we carry almost 50,000 stock items. About 60% of these are bought from outside suppliers and other Westinghouse Divisions. The balance is self-manufactured. We have in our control department alone 100,000 drawings representing component parts and complete assemblies.

Obviously, standardization is of

prime importance under these conditions, and we need cooperation of engineering, materials standards, and manufacturing departments to do an effective job.

Our standardization program has these objectives:

(a) To reduce the number of stock items.

(b) To reduce the number of negotiations with vendors.

(c) To eliminate the time consuming contacts with our engineering, tools and equipment, and manufacturing departments.

(d) To standardize our drawings, methods and buying information.

To approach this, we have six major plans of attack:

Slow movers in Union Steel's inventory show up in this Kardex "in and out" record.

After purchasing department scrutiny, they are referred to the Standardization

Committee for action.



1. Project Meetings

The first plan is to take part in project meetings. Design engineers and representatives of our cost and methods group, sales, manufacturing, purchasing and other departments attend these group sessions. The object is to promote better, more standard design of components and complete assemblies.

Here's an example of the results we get. A recent project meeting revealed that a new welder design called for eight different types of bolts. After consideration, we were able to change the design and come up with one standard bolt that would be suitable for the entire welder. At a relay project meeting, we suggested a molded spool, which eliminated the stocking of two micarta tubes and two end washers, and brought both material and labor cost savings.

2. Buyer Investigation

Our second major approach to standardization is buyer investigation. We expect the buyer to take specific categories of material and to analyze each group for consolidation and elimination of parts.

For example, by superseding the old solder type and using crimp type connectors, we standardized and cut costs at the same time. We eliminated 40 solder pot locations and approximately 200 styles of terminals. Estimated savings amount to almost \$18,000 per year in solder alone.

Transformers were formerly designed and built to fit our resistance welding cabinets. We discovered that we had accumulated, over a period of years, 350 different sizes. In cooperation with our engineering department, we were able to cut the number of transformers from 350 to 24. More important, we eliminated a large number of com-

ponent parts. We had been using 120 special brackets, 210 standard brackets, and 95 different punchings, plus numerous lead wires and special insulation. We are now able to purchase standard brackets and punchings.

3. Commercial Standards

Our third approach is to have purchasing recommend adherence to commercial standards. For some time, we had been buying carbide tools to specifications that did not conform to the tool manufacturers' standard catalog items. This was a result of having a few major producers help us in establishing our specifications many years ago. As the industry expanded, we found that our specifications had become specials. This was a burden to our suppliers and a difficult procurement problem for us. In cooperation with other divisions, we arranged for industry standard tools to be specified and bought. Adherence to commercial standards reduced the number of inquiries and allowed us to buy at better

Along the same line, all our control wiring was formerly done with cables with specific tracers. We had green with white tracers, red with blue, blue with white, and any number of color combinations. It was a headache to keep all types in stock. It caused a handling problem and a time consuming buying job. We eliminated all color coding and went to a standard black wire marked with an inexpensive numbering tape. This replaced 40 to 50 different types of cable and reduced the number of orders by the same amount.

4. Advisory Service

Our fourth approach is to have purchasing act in an advisory capacity, presenting new methods and materials that will aid in standardizing our products.

For example, we recently submitted samples of a new molded material for our engineering personnel to study. For some time we had thought about molding our field and commutator coil forms, but were unable to find a phenolic material strong enough for winding heavy rectangular magnet wire. A new material, molded glass polyester, was the answer.

Under our old method we took plastic tubing and taped and cemented a washer on one end. We fabricated the other end of the coil in the same manner, and telescoped and cemented the two pieces to-

gether to form a complete coil. To wind heavy magnet wire on the coil, we had to block the arbor hole with a mandrel to provide strength. This was expensive and created quite a stocking problem.

Fourteen sizes of field coils molded from glass polyester will delete from stock 140 different items of plastic tubing and end washers. Our new coils give better appearance and are strong enough for coil winding without the use of mandrels or support of any kind. Other departments, as well as purchasing, benefit in savings of time, effort and paper work.

5. Purchase Engineering

The fifth approach involves our purchasing engineer. He is in a good spot to promote standardization along with our cost reduction

Standardization Means:

- . . . fewer inventory items
- . . . lower inventory investment
- . . . fewer handling problems
- . . . greater competition
- . . . quicker availability
- . . . better interchangeability
- . . . lower costs
- . . . less negotiation
- . . . less paper work
- . . . more time for better buying

program. For instance, we required a gear shaft, knob and lever on one of our welders, and a similar knob and lever on a new control device. Both design engineers, in separate departments, had about the same unit in mind. Our purchasing engineer, by being in on both projects, was able to suggest the use of one standard knob and lever acceptable to both departments. The combined usage allowed us to buy in 1,000 unit lots instead of 500 units, saving money and eliminating duplication.

6. Purchasing on the Alert

Our sixth and final approach is, in effect, a check by which purchasing is alerted on all new items authorized for stock. We now receive and review an engineering form which is a request for authorization to place new material in stock. This

request is reviewed in purchasing with the following thoughts in mind:

- (a) Is the part necessary?
- (b) Is the material readily procurable?
- (c) Is its cost reasonable in line with its intended use?
- (d) Can we use a similar material in stock?

This procedure can be very effective. Once, before we began to receive this form, our tooling and engineering departments decided to use coil stock steel in fabricating our welding punchings. In the rush of development, no one thought to talk with purchasing about the availability of this material which happened to be very scarce at the time. Due to short notice and special nature of the material, considerable time was lost in trips to supplier plants and special negotiation. We also had to call on central purchasing headquarters for help. A great deal of this time could have been saved by contacting purchasing prior to authorizing new material for stock.

Attempts at standardization are not always made on materials. For example, we use several different silver contacts. Originally, these were spread over a number of drawings. A few minutes discussion with the engineering department about consolidating these items on one print resulted in a drawing covering 15 items. We can now cover all our silver contacts requirements by sending out a single inquiry. This does away with handling of drawings and issuing frequent, repetitive inquiries, making more time for constructive buy-

Standardization offers many advantages to the industrial concern, which have frequently been cited. Let us emphasize here the potential reduction of buying routine which an effective standards program makes possible.

The few examples mentioned in this article have so far actually resulted in reducing our stock to the extent of 900 different items. We are confident that by continued systematic effort, we can reduce our total inventory from 50,000 to possibly 30,000 accounts. What does this mean to us in purchasing?

Obviously, this could result in 40% less order handling, and the remaining items, being more standard, are more readily available with less special negotiation. So the advantages are cumulative. We have less inventory, less investment, fewer handling problems, plus more time for even more effective buying.

How To. . . Buy Capital Equipment

By Eugene S. Page

UR OBJECTIVE in this article is to analyze and present all of the major elements involved in the purchase of capital equipment, after the decision has been made to commit financial resources therefor. The scope of the problem includes:

1. Determination of require-

Commitment to purchase—the meeting of the minds within the buyer's company and between buyer and seller.

3. Completion of contract.

Coordinated effort and communication among all parties concerned is essential at all stages.

Areas of Responsibility

In the purchase of capital equipment, all factors must be clearly understood, and must be expressed to a degree sufficient to obtain such understanding. This results in a "meeting of the minds" by all parties and individuals concerned. Establishment of responsibility is of prime importance. Where does this responsibility lie?

Determination of requirements is entirely the buyer's (company's) responsibility. It is true that the seller may assist and advise on suitability of equipment and performance that may be expected. But even when it is understood that capital equipment is to be obtained to do a specific job, i.e., to give a

certain performance, then the definition of performance required is still entirely the responsibility of the buyer.

Within the buyer's company, some authorized individual must be the one to assume this responsibility. Usually this person is a manufacturing director. He actually has a dual responsibility:

To determine the buyer's requirements and

2. To specify these requirements completely to the purchasing agent, in a manner that will serve as a basis for an adequate purchase contract.

The purchasing agent has the entire responsibility for the agreement of purchase between buyer and seller. Again, this is a dual responsibility:

1. To purchase, and obtain, capital equipment which meets the requirements.

2. To define completely and in unmistakable language all areas of responsibility.

Both parties must, of course, complete the purchase contract in accord with its terms and conditions. Each has a defined part to play. Within the buyer company, all business functions, including engineering, manufacturing, purchasing, accounting, and quality control, must be utilized and coordinated to assure and to determine that the seller has accomplished everything stipulated in the contract.

"The great end of life is not knowledge, but action." This truth was expressed by Thomas Huxley in Science and Culture (1871). In respect to capital equipment, the heart of the matter is performance. Here is where confusion, on a vital matter, may exist. Remember the following rules:

1. Determination of what is to be accomplished, i.e., the performance required is (as already stated) the responsibility of the buyer.

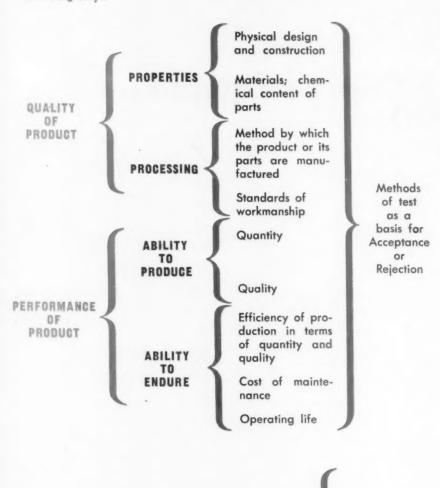
2. The performance required and the specifications given to the purchasing agent are not necessarily the same thing. When these are not the same, the basic question is: "Who is responsible for the selection and supply of capital equipment which, when properly installed and used, will provide the performance required?" This responsibility may be in the buyer, or in the seller, but if it is not defined by or in the purchase contract, the placement of responsibility in the event of failure becomes difficult.

3. Specifications for capital equipment may be conveyed to the purchasing agent and expressed in the purchase contract in any one (or a combination) of several different ways. Table I illustrates the most usual ways of specifying.

4. If the specifications in the purchase contract are entirely on the basis of performance which the equipment must supply, then, unless stated otherwise, it might be pre-

Table I Specifications for Capital Equipment

The requirement may be conveyed to the purchasing agent and expressed in the purchase contract by any one, or a combination of the following ways:



TIME REQUIREMENT EQUIPMENT COMPLETE, INSTALLED & READY FOR USE Negotiation Manufacture Shipment Installation

sumed that selection and supply of the correct equipment, and its performance, rests with the seller. However, presumption is not enough. This responsibility should be stated in unequivocal language. If the specifications are based entirely on the quality of product (equipment) to be supplied, then performance responsibility rests with the buyer, and the wise seller will clearly state so. When both quality of product and performance are expressed (a not unusual occurrence) the areas of responsibility must be specifically set forth. There is no other way.

5. The final objective, of course, is to obtain equipment whose performance (responsibility as placed) will equal the performance required

(responsibility of the buyer).

The purchase of capital equipment is the final result of the exercise of business judgment by management—which evaluates available information, applies company policy, and makes a decision to commit financial resources. As such, it represents the best cooperative effort of all business functions, including sales, engineering, manufacturing, purchasing, and financial.

Requirements

When a decision to acquire capital equipment has been made, the specific requirements must be transmitted to the purchasing agent. Minimum adequate information will include:

I. Quantity.

II. Specifications.

A. Quality, defined by the necessary statements and drawings.

and/or

B. Performance, in terms of production and endurance.

III. Responsibilities of the buyer and seller, as to quality and performance.

IV. Time required for equipment to be complete, ready for use.

V. Other conditions.

A. Shipment.

1. Protection.

2. Type of carrier.

B. Installation and Testing.

1. Buyer's and/or seller's responsibility.

Purchase

Now the job is squarely on the shoulders of the purchasing agent. His work will be accomplished in four steps; starting with value analysis, establishing a source of supply, accomplishing a meeting of the minds in the form of the purchase contract, and effecting ontime delivery. Broken down into more detailed tabular form, his procedure is as follows:

I. Appraisal.

A. Requirements.

B. Economic justification.

II. Negotiation.

A. Selection of bidders.

B. Solicitation of proposals.

C. Interviews.

D. Decision on source of supply.

III. Purchase Contract.

A. Parties to contract.

B. Quantity.

C. Specifications.

Placement of responsibilities for quality and performance.

2. Methods of test as a basis

Table II

The Principal Elements of Contract Terms and Conditions

CONTRACT Correlation and intent of specifications and contract documents

Rights of termination

COMPLETION

Time schedule
Shipment
Protection
Installation
Liability insurance
Start-up and adjustment

Performance and Supervision

WARRANTIES & GUARANTEES

Quality Performance Duration

LEGAL PROVISIONS

Transfer of title and possession Patents and royalties Labor standards Safety appliances Arbitration

FINANCIAL CONSIDERATIONS

Price

- a. Shipping point
- b. Destination
- c. Installed

Price alterations Contingent charges Method of payment

for acceptance or rejection.

3. Engineering changes.

D. Conditions.

- 1. Contract terms.
- 2. Completion.
- 3. Guarantees.
- 4. Legal provisions.
- 5. Financial considerations.

E. Price.

IV. Expediting.

- A. Acknowledgment.
- B. Acceptance.
- C. Promise.
- D. Shipment.
- E. Completion.

The first step in this procedure may need some explanation in view of our premise that the decision to purchase has already been made, which would imply that the economic justification of the project has been established. Nevertheless, a reappraisal should be made specifically from the standpoint of purchasing, in the light of the means available to best fulfill the requirements. It will be useful as a guide in negotiation and appraisal of sellers' proposals, and to document purchasing judgment.

The third step indicates that the purchase agreement for this type of procurement should be a formal contract rather than the conventional routine purchase order. Purchase of major capital equipment involves substantial sums of money, relatively long-term investment, and large responsibilities by either or both buyer and seller. It should preferably, therefore, be executed in the

form of a contract setting forth the terms of the agreement in detail, and signed by authorized representatives of both parties. The principal elements of contract terms and conditions are listed in Table II.

Completion

The last step in the listed procedure has appropriately been expressed by the single word "completion". There is a splendid finality in this word, but the concept of completion is not quite as simple as

may appear.

The purchase contract has not been completed as long as either party has any responsibility remaining thereunder, either actual or contingent. It is not unusual to think of a contract as closed after the equipment has been accepted and payment made in full. However, this disregards the liability of the seller, if any, for the quality of his product (warranty of materials and workmanship) and for its successful operation (guarantee of performance).

Completion of the contract involves three groups of actions:

Initial action by seller, including both performance and supervision, covering:

- 1. Shipment.
- 2. Delivery.
- 3. Installation.
- 4. Start-up and adjustment.

Final action by buyer:

- 1. Inspection.
- 3. Testing.
- 3. Acceptance or rejection.
- 4. Payment in full.

Final action by seller, including discharge of all responsibilities as required under the contract for quality and performance of the equipment furnished.

Summary

To summarize in the purchase of capital equipment:

1. Use adequate Specifications, clearly expressed in terms of the quality and/or performance required.

2. Define completely and specifically the *Responsibilities* of both buyer and seller.

3. Establish a *Purchase Contract*, as a two-party document that represents a true understanding and agreement between buyer and seller.

4. Provide proper methods, requisite technical knowledge, and adequate facilities for inspection and testing, for prompt and accurate determination of *Compliance* with specifications and discharge of responsibilities.



The electroless plating process is applicable to parts varying widely in dimension, contour, and composition. So far, nickel coatings on base metals are the only ones commercially available.

Resin-type deionizers are used to purify water for electroless plating baths, since the latter must be replaced frequently. This is one of the factors that keep costs high in this process.

Plating Without Power

. . . a new technique for protective coating and product finishing

By Thomas A. Dickinson

relatively new process of special interest to the industrial purchasing agent because, in addition to being a finishing technique with many new product applications, it can be used to reclaim for further use a variety of expensive tools and metal components which (due to excessive wear, mistakes in machining, etc.) have heretofore been scrapped and replaced.

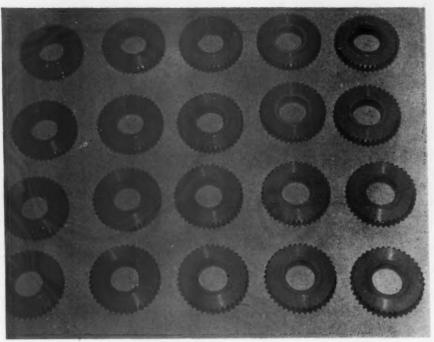
A chemical-reduction process, it is distinguished from electroplating

methods to the extent that it does not involve the use of electrical current for deposition purposes.

Articles to be electrolessly plated are first carefully cleaned, much the same as if they were to be electroplated. Then they are immersed in a hot plating bath, where the components themselves serve as catalysts. Resultant catalytic action causes the metallic constituents of the solution to be uniformly deposited over all component surfaces that come in contact with the bath—

including the surfaces of holes and other areas which could not heretofore be plated, due to the poor "throwing power" of electrodeposition equipment.

In laboratory work, a number of different metals have been electrolessly deposited on both metallic and nonmetallic surfaces. But for virtually all commercial purposes, electroless plating is now being used to deposit dull and bright coatings of nickel on ferrous and non-ferrous materials. The advantages of this



Organic masking media made it possible to plate the center sections of these brass gears for added wear resistance, without putting a coating on the gear teeth.

can be briefly summarized as follows:

(a) Nickel coatings with varied thicknesses are uniformly bonded to deposition surfaces with enough strength to permit the reclamation of components that are worn, overmachined, or over-tapped.

(b) Uniform coatings with virtually all thicknesses can be applied for dimensional tolerances of as little as plus or minus 0.00005".

(c) Low-porosity finishes with excellent resistance to wear and corrosion, inherent lubricity, and excellent surface hardness can be obtained—often, as noted above, in areas that could not otherwise be plated.

P. A. John Lindsey of California Engineering Company conceived one of the more practical applications for electroless nickel coatings, when he was recently interviewed by a salesman whose company specializes in electroless work.

"You see," Lindsey explains, "we'd been having trouble with steel extrusion dies which wore out too soon. We'd tried to reclaim some of the worn dies by having them chrome plated, but we hadn't been very successful because it wasn't possible to build up uniform layers of chrome on the worn die surfaces.

So I asked the salesman whether nickel coatings applied by means of the electroless process would do the trick.

"The salesman said he was sure it would, and a few days later we discovered he was right.... Electroless plating may cost more than conventional electroplating, but in our particular case it's saving about \$100,000 annually on the cost of replacement dies alone."

The relatively high cost of electroless work is attributable to the comparatively short life of required plating solutions and the need for special processing controls. Accordingly, while there is every reason to believe that the present cost of such work can be reduced as time goes by, nobody is now willing to predict that electroless methods will eventually replace other plating methods where the latter to date have been used with reasonable success.

Most of the literature regarding electroless work at present emphasizes the fact that the process can be used to plate extremely large articles, which could not otherwise be metal finished. Bert J. Sherwood of Chemplate Company, Los Angeles, says the same thing is true of some extremely small parts.

"We have been especially successful," he adds, "in using the process to plate small and intricate instrument components, made from noncritical steels. These parts were previously made from critical materials at a much higher cost, because there was no practical method of protecting them if they comprised alloys that were susceptible to corrosion."

Electroless plating has been known to researchers as a theoretically possible idea since about 1845, but there was no good reason to believe it would find practical applications until 1946, when Abner Brenner and Grace Riddell of the National Bureau of Standards accidentally learned how to inhibit the spontaneous reduction of nickel salt in solution so that nothing more than a desirable catalytic action would occur.

The basic NBS discovery has since been adopted and improved by a considerable number of firms—notably General American Transportation Corporation of Chicago and Metal Processing Company of Cedar Grove, N. J. However, it is still technologically new enough to be unknown to many competent and experienced plating men.

Prior to 1953, one of the most important limitations of the process was the fact it necessitated the use of hot plating solutions. This, in turn, made it impractical to use wax-type masking media of the kinds employed by electroplaters where it was not desirable to plate all surfaces of certain products.

P. A. Julian Sait of General Gear Company locked horns with the above limitation early in 1953, when a subcontractor assured him it was impossible to plate the center sections of brass gears (for added wear resistance) without also plating the gear teeth. When the subcontractor explained why, Sait exploded:

"You've already proved you can do something the electroplaters can't do. So what makes you think you have to use the same masking materials they use? Haven't you heard about the new plastic strip coatings?"

The plater hadn't, but he soon learned. And he's now saving Sait's company something like \$10,000 a month by making it possible to fabricate one-piece gears which will serve the purpose of two-part assemblies when they are electrolessly plated.



The purchasing agent performs a definite public relations function for his company, whether he is conscious of it or not. More than the things he actually does, how he does them exerts a significant influence on the way the public and the business community regard his firm. If he does them with this in mind, he can make a significant contribution to company good will and prestige.

Here are a number of DO and DON'T suggestions that public relations-wise purchasing men consider important in making the purchasing function a selling one.

DO ...

insist upon courtesy to all callers by receptionists. The all-important first impression is made before the salesman ever reaches you. A courteous reception stamps your company as a friendly and cooperative concern. If the young lady has other duties as well, be sure they don't interfere with her primary job of reception. If it's a case of the wrong personality, or a "high hat" attitude resulting from petty authority, switch personnel to correct the situation.

DON'T ...

keep salesmen (or any other callers) waiting an unnecessary minute. Their time is their stock in trade; don't waste it. If an appointment is made, keep it as scrupulously on your side as you expect the other fellow to keep his date with you. If you are unavoidably tied up, see to it that he understands the reason and probable length of the delay, so that he can make more profitable use of the waiting time and come back later. A reputation for keeping callers "on the hook" soon spreads—and hurts the company's standing.

DO ...

make it easy for suppliers to find and follow the right channels, to reach the right man in your department or in the plant. Many companies now issue booklets or folders for sales callers, explaining what they buy, why and how. An attractive, cordial, and helpful welcome folder is a tangible reminder that yours is a good firm to do business with.

DON'T ...

limit hours for interviews unreasonably. Sure, you have to organize your day, and the salesman respects that need. But there are still a few buyers who post a "one-to-three, Tuesdays and Thursdays" schedule. How much business would your own salesmen bring in, working a four-hour week? Wouldn't those calls be the first ones they would skip? Unreasonable calling hours can put your company on a supplier's

black list. And don't be afraid to make exceptions for the out-of-town caller or the man with a special story. The open door pays.

DO . . .

show pride in your company and product. You can't get respect from others unless you have self-respect.

DON'T . . .

waste time in interviews, but don't cut them so short, either, that the salesman cannot tell his story logically and completely. And while he is with you, give him your undivided attention. The salesman who feels that he has had a fair hearing will concede that his own product or salesmanship may be at fault for a "no sale". But if he is frustrated in his presentation, he'll put all the blame on your "unfairness".

DO . . .

work for high company and department morale. Make yours a good company to work for. Public relations affects your own employees, too, and there's no better way to establish and spread a good reputation than to promote this feeling all down the line.

DON'T . . .

make promises you can't fulfill, or hold out hones that probably won't materialize, or keep a supplier dangling after a decision has been made. Such tactics—sometimes adopted with the kindest intentions of sparing a supplier's feelings—will boomerang to your discredit in the end. Whether it's bad news or good, be frank and realistic. It's a good reputation for a purchasing agent to have, that those who deal with him always know exactly where they stand.

DO . . .

cultivate local sources and see to it that they get as good a share of your business as is practicable. The nearby supplier is an asset that can't be measured in dollars alone. Patronizing him is one way of building a prosperous community, encouraging and stimulating business activity and keeping money in local circulation. If you are one of those who com-

Relations Into Your Purchasing

By David Markstein

plain about lack of local facilities, remember that you may be able to help them grow. The local booster is known as a good civic neighbor, and is boosted in turn.

DON'T . . .

forget the unsuccessful bidders. It's just common courtesy to notify them when the business has been placed elsewhere, so that they won't keep stock earmarked or machine time open for you longer than necessary. So far as you can do so without breach of confidence, let them know why they failed to land the order; it may help them to build more successfully next time. Everybody can't win every time, but a repetition of unexplained unsuccessful bids discourages bidding on future orders. The supplier will probably make his own explanation, probably the wrong one, reflecting no credit on you. Make it clear that his bid has received full consideration, and that you hope he won't be deterred from trying again.

DO . . .

express appreciation for the job that's particularly well done, and for the extra service rendered. Everybody likes to know that their efforts are noted. A sincere "Thank you" goes a long way.

DON'T ...

make demands for special service that isn't really required. The supplier who strains himself to make a delivery on short notice is very unhappy to find that it has served no useful purpose.

DO . . .

make full use of waiting rooms and lobbies to post displays, sample products and pictures which explain the company and the things it makes. A soft drink plant has a free dispenser to serve its products to callers. A metal working plant shows photo murals of its plant at work, to show the various processes. The branch plant of a nation-wide organization displays photographs of its facilities in other cities. An appliance maker uses lobby wall space to picture its products in use by domestic consumers. All of these devices are interesting and informative, and serve to "put other salesmen on the road".

DON'T . . .

overlook the importance of the ordinary routine means of communication. The voice on the telephone, or the tone of a letter, is you to the person on the receiving end.

DO . . .

participate in the activities of business clubs and civic groups. We take it for granted that you are a member of the local Purchasing Agents Association, and that these buyers are familiar with your company and its products, through you. But that circle of contacts can be widened in other "outside" groups, shedding favorable publicity upon your company—and yourself.

DON'T . . .

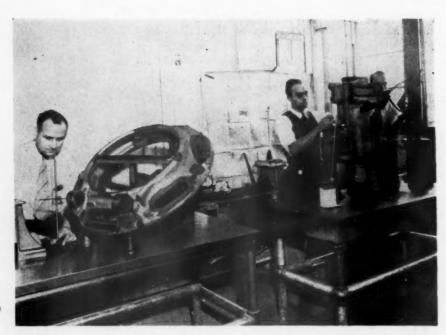
shirk public services. Establish your company as a civic-minded organization, actively interested in worthwhile projects for the good of the community. In several cities, purchasing agents have contributed specific and valuable service in helping to put the conduct of municipal business on a sound and efficient basis.

DO . . .

court the local press. Purchasing can make newsperhaps more often than you think-and bring your company to favorable public attention. Take a tip from the City Hall reporter, who is constantly seeking, and finding items of human and community interest in purchasing department activities. A breakdown of purchase figures can show the importance of the firm to the local community's economy. A timely, authoritative comment on business developments marks the company as an alert and progressive organization. Sizeable orders (given or received), unusual requirements, new products, plans for diversifying or expanding operations, all make newsworthy items, possibly a feature story for the Sunday edition. Call the reporter, and invite him to bring a camera, Don't be afraid of an editorial turndown. A story doesn't always result, but when it does, it invariably reflects favorably on the company and enhances its position as a highly regarded citizen.

Steel Founders Set New Minimum Standard for Steel Castings

Copies of the "Recommended Minimum Standard" for commercial carbon steel castings are available free upon request to the Steel Founders' Society of America, 920 Midland Building, Cleveland 15, Ohio. The Society also offers a booklet entitled "The Machinability of Cast Steels."



Under the new standard, the foundry assumes responsibility for checking to insure accurate dimensions in the finished casting when drawings are supplied along with pattern equipment. Here sample castings are checked for conformity to blue prints and pattern dimensions.

"Recommended Minimum Standard" for commercial carbon steel castings, developed by the Steel Founders' Society of America, is ready for distribution to users and producers of steel castings. This is the first "Minimum Standard" in the century long history of the steel casting industry.

This Standard is the outgrowth of studies made by the S.F.S.A. Product Development Committee and subsequent recommendations calling for its preparation. Succeeding work and its ultimate drafting became the task and the accomplishment of the Specifications Committee. Thorough discussion in each of the eight Society divisions

throughout the country focused the practical technology of the entire Society's membership into its final composition.

Acceptance Is Voluntary

Acceptance of the Standard will be voluntary on the part of both the buyer and the steel foundry source of castings. It is not expected, nor is it intended that it displace other specifications now in use. It does, however, establish a firm basis by means of which the purchaser and the supplier of general commercial cast steel components can arrive at a common understanding. It represents a common sense approach to a fuller use

of the properties inherent to cast carbon steel. With this Standard the Steel Founders' Society of America goes on record as advocating the purchase and sale of carbon steel castings in a preferable physical and metallurgical condition.

The Standard emphasizes that its requirements are minimums and that they are not designed to influence in any way the production of castings which are practical improvements on such minimums. It is intended that all clauses apply unless otherwise agreed upon by producer and customer.

Quality control procedures, primarily in regard to physical and chemical properties, will govern production of steel castings under conditions set forth in the Recommended Minimum Standard. Control of these properties implies a need for similar techniques in the selection of raw materials and the processing steps through the melting and heat treating cycles. Quality control procedures are a growing factor in steel casting production. Selection and control of sand properties, selection and use of scrap, relationship of casting size and shape to metal pouring temperatures, required temperatures and treatment for proper alloying, rate of heat input in both melting and heat treating, process inspection, mold cooling cycles, and variations in dimensional shrinkage are a few of the items in a steel foundry that lend themselves to such techniques.

Heat treatment of steel castings is emphasized. The Minimum Standard recommends either full annealing, single normalizing, or tempering (stress relieving) as desirable treatment. Research reports and literature issued by the Steel Founders' Society have identified the improved design properties achieved by heat treatment. A machinability research shows that heat treatment improves the machining characteristics of cast steel, an important factor in the cost of metal components.

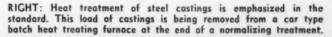
Note is also made as to the desirable practice of furnishing a casting drawing along with pattern equipment. Under this condition the foundry assumes the responsibility for checking to insure accurate dimensions in the finished casting. Such action is particularly important when attempting to use equipment originally made for other metals or when wood patterns are stored for periods of time. The growth and contraction of wood with the seasons is sufficient to throw long dimensions out of line or warp a pattern in such a manner as to create an out-of-shape casting. This fault is particularly true of the so called "inexpensive patterns".

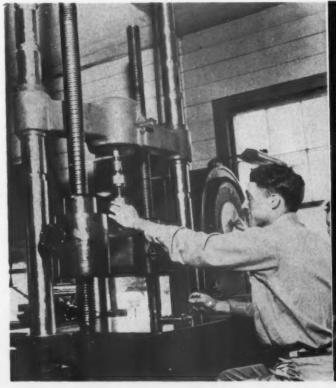
Methods for maintaining specified physical and chemical properties are set forth in the body of the Standard. Variations in the chemical content are subject to constricting totals designed to give proper metallurgical balance. Inspection requirements as to external quality are at the visual level with dimensional limits checked by guages and fixtures where required.

During the development of the Recommended Minimum Standard several foundries adopted the practices advocated as a basis for their own operation. There will be applications and production, however, where the quality level set forth in this Standard is not required. It must be emphasized that the use of this Standard is a matter of voluntary agreement between the foundry supplying the steel casting and the customer.

The creation of this Minimum Standard is a natural and logical outgrowth of activities within the Steel Founders' Society. Today, some thirty research projects sponsored by the Society are published and available to its members. Some portions of these are supplied to customer industries as guides in the use of steel castings. Twelve additional projects are under way and others are contemplated. All of these are directed toward the improvement of steel casting production methods and the metallurgical and physical properties of the various carbon and low alloy cast steels. The Recommended Minimum Standard becomes one of the first steps in a marketing program now being initiated by the Steel Founders' Society of America. Quality, dependability, and reliability are marketing instruments in themselves. Improved physical and chemical properties constitute another market improving device. The adopted Standard promotes these factors.

LEFT: This testing machine is important in the quality control of castings. The Recommended Standard calls for continuous control of tensile strength, yield point, elongation and reduction of area.









How To. . . Save Money with **Special Trucks**

HERE material handling jobs cannot be mechanized in any other way, and for further reductions in the cost of handling, more and more firms are turning to the use of specially designed industrial

Specially designed trucks are not intended to do away with standard models, but rather to supplement them as needed. Not all companies can make use of "specials". However, many can.

For this discussion, industrial trucks may be conveniently divided into three general classes:

1. Standard trucks, in many mod-

els, but utilizing only those basic features commonly associated with such equipment.

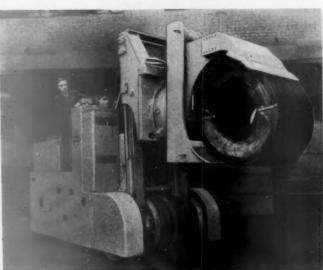
2. Standard trucks equipped with interchangeable attachments or accessories to increase versatilitysuch as rotating heads, booms clamps, scoops, rams, etc.

3. Trucks incorporating a series of attachments, or of altered design, to accomplish a desired objective.

Vehicles which fall under the definition of Class 3 may be considered as "special".

For many companies, standard trucks are more than adequate to obtain maximum economies for the operations required. Still other firms find need for attachments or accessories, which may be interchanged to give them the flexibility they feel is necessary. There is stlil the third group, which has definite need of "specials" to mechanize where it is otherwise impossible, or to increase basic truck handling economies.

One point is important. Specially designed trucks are not for big plants alone, nor for small plants alone. Rather, their function is twofold: (1) for one specific job that is repeated with regular consistency; or (2) where a truck may be so



PROBLEM: Lifting, revolving, and transporting 15,000-lb. coils of strip steel of varying widths and diameters. Standard ram trucks were not flexible enough for handling in both the horizontal and vertical positions.

SOLUTION: Truck with special rotating clamp to pick up and and handle coils in either position. Coils are clamped just hard enough to hold them, not hard enough to damage them.



PROBLEM: Transporting auto bodies from initial assembly points to widely scattered storage areas and subsequently to final assembly lines. Speed and dependability were essential.

SOLUTION: Three-wheeled fork trucks were fitted with special racks to support the finished bodies. Tilting feature enables the bodies to be up-ended and stored vertically-same area takes 3 times more than with horizontal storage.

CHECK LIST

Where You Can Use "Specials" to Advantage

By Sheldon K. Towson

President & General Manager The Elwell-Parker Electric Co. Cleveland, Ohio

adapted to fulfill a variety of jobs, thereby saving a company the cost of several standard vehicles which may not be utilized to the fullest of their capabilities.

The accompanying check list is designed for measuring industrial truck efficiency in a given plant. If a study indicates that additional savings are possible with a specially designed truck, consultation with a truck manufacturer can show how the problem can be solved and where such economies may be obtained.

The check list will spot inadequacies of performance or opportunities for savings in a company's handling methods. However, a careful study of potential savings must be the deciding factor, because in the final analysis it is the need for reduced operating costs that initiates the consideration of a "special" and justifies its purchase. If the problem is safely, a solution will result in fewer lost-time accidents and indemnity claims. If restricted headroom is the problem, the solution will mean more efficient use of storage space, perhaps saving the cost of a new building. No matter what the problem, the final solution must result in a cost reduction.

The information necessary to determine accurately the resultant savings from use of a specially designed truck is available from a number of sources. A company's own operating records are most important. Time and motion studies can supply additional information. A valuable source of information is, of course, the truck manufacturer himself. His past experience with similar problems, his ability to visualize the final results, and a

To handle loads which are awkward, bulky, irregularly shaped, etc. Where loads are such that they may not be effectively handled by standard trucks, "specials" are often called upon to do the job. Cost savings under such circumstances are usually significant.

To coordinate with specific plant operating conditions. Oftentimes, a truck may be called on to assume a role in the production process, e.g., placing raw materal and removing fabricated parts from a machine. Where a standard truck cannot match the needs and the output of such a machine, a "special" may be the only means of attaining the effective output of the equipment.

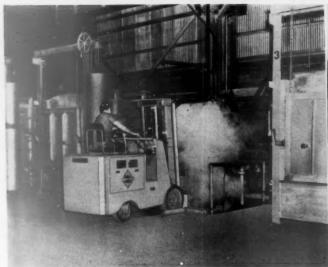
To cope with plant limitations. Factors such as limited floor load capacity, limited ceiling heights, limited area for maneuverability, etc., call for specialized equipment that can overcome these conditions and achieve maximum output from the truck and highest possible savings from the operation. Thus, "specials" may eliminate the need for more costly plant or operating alterations.

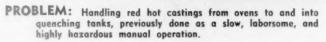
To mechanize manual handling operations. Specially designed trucks may be able to mechanize handling jobs that could not be done with standard trucks and attachments or accessories.

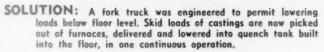
To increase safety. Trucks may be specially designed for increased safety both to operators and loads on difficult-to-handle jobs. The function of the equipment need not be altered for the operations themselves, or with thought to increased economies, but for safety alone.

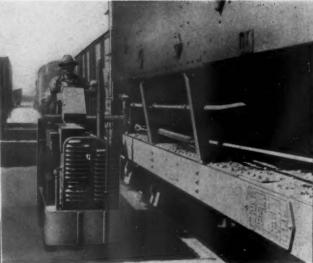
To reduce maintenance costs. In many cases, a standard truck may be able to perform the required tasks, but severe operating conditions (heat, floor surfaces, etc.) may take a heavy toll of the truck itself. Specially designed trucks may be built to withstand the rigors of the operation. As with safety, while the function is standard, the design is special in that the vehicle may have an extra large drive axle, a more durable frame, special guards to protect it from heat, etc.

To eliminate additional handlings. The more tasks that can be performed by the same truck, the more time will be saved, the less physical effort will be required, and, in total, the greater will be the savings realized. "Specials" are often used to perform a number of different jobs. Other handling equipment may be freed for other work.









PROBLEM: Crank closing of bottom dump gates on iron ore rail cars was a four-man job. Excessive time, physical exertion, and risk of physical injuries indicated need of mechanization.

SOLUTION: A fully adjustable powered wrench was built on the platform of an industrial truck. The mobile truck comes to car location, and the single truck operator can open or close the gates in a matter of a few seconds, without effort.

sincere interest in helping industry can often provide helpful facts and ideas. The examples shown in the accompaying photographs are specific case histories of handling problems solved by the application of "specials".

Consultation with the manufacturer is a "must" in determining whether your handling system is giving you maximum economy. No one seeks to sell a "special" where a standard truck will do the job. On the other hand, it would be a very costly practice to "make do" with a standard vehicle when a "special" is needed. Dollar-wise material handling men can recognize the cost figures that will prove the advantages of investment in

specialized equipment.

Three points must be considered: (1) original cost of the vehicle itself; (2) cost of keeping it in service, including cost of truck operation, amount of down-time, cost of replacement parts, and the general cost of maintenance; (3) performance and possible savings to be gained from the equipment.



PROBLEM: Interfloor transportation of 137-inch platform truck (required to provide 72-inch platform) on a freight elevator 120 inches deep. The alternative: installing new and larger elevators.

SOLUTION: Basic truck was redesigned by hinging the platform and the operator's pedals to reduce overall truck length to 118 inches, fitting neatly into the small elevator. The alterations do not affect the truck's capacity.



PROBLEM: To save the cost of a second truck, or using attachments that would require frequent interchanging, a device was sought for handling both drums and cartons, without pallets.

SCLUTION: Platform truck was developed with a unique hydraulic clamp. Each arm is independently operated, and the entire unit is mounted on a side shifter to permit accurate spotting of loads in close quarters.



Make an Audit of Purchasing Procedure

By Douglas Basil

College of Business Administration Marquette University

THERE is a recurring need in purchasing, as in other fields, to review and study the paper flow within the department. Such a study necessarily includes a re-examination of the system itself and of the work load of each individual operating within the system.

The question immediately arises as to what individual, within or without the organization, should make the study. There can be no pat answer to this, beyond stating that a person in a position of authority should either make the study or authorize it.

Competent outside consultants are available. In addition to their own qualifications, they have the benefit of wide experience with the practices of other firms. Their fees are often more than covered by the cost savings in streamlined paper flow within one year.

However, the Director of Purchases or one of his aides can do the study himself. One of the big advantages of this method, in addition to the expected increase in efficiency and cost savings, is the opportunity for the executive to reacquaint himself with the basic operations and the "mechanics" of his department. Furthermore, if his findings warrant it, the information collected in such a study can be turned over to the outside consultant. The prelimi-

nary study will save enough in time—and fees—to fully justify itself on a cost basis alone.

Danger signals that would cause a Director of Purchases to consider investigation of the paper flow include: failure to get maximum use from purchase order copies distributed within the company; duplication of functions or operations; collection and posting of information that has no apparent use; bottlenecks in the processing of forms; and, of course, the pyramiding cost of clerical work within the department.

I. Procedure for the Study

Define the Scope

It is important at the outset to define the scope and limits of the study. "Paper flow" is a pretty broad subject. The study, or specific sections of it to be carried on at one time, should be kept within manageable limits. The study of the Purchase Order flow alone would take the investigator into a multitude of departments and functions. Therefore it is best to carry through a complete study of one copy of a specific piece of paper, such as the orignial copy of the Purchase Order, and then each order copy in turn. Unless the investigator follows such a plan, he will be lost in the complication of a myriad of details, through which he will find it difficult to see any clear light in the

Eventually, the study can include the complete distribution and flow of all order copies, and all the related forms and records, but to make a fruitful study, it is best to set definite limits to the immediate project.

Study the Routine

To make a useful study of paper flow on any particular form, it is necessary to study, and perhaps participate in, its routine handling. The monotonous job of filing it, for example, is worth examining, like every other routine handling. It may show the opportunity for savings through use of portable buckets or some form of visible records to speed up posting and filing. At what point is a stapling job done? Could it be done to better advantage at another stage, or omitted altogether? Could the sorting out of data required for control purposes be done more efficiently in another operation, or from another copy of the same form?

The important point here is that

Check List of Common Errors in Paper Flow

Distribution of extra copies of forms

Distribution of copies to departments having no need for them

Filing of copies in departments receiving the forms but having infrequent reference to such forms

Use of two copies in one department, where one copy would suffice

Permanent file copies provided to departments having only a temporary need for them, where they could logically be routed to another department after processing

Copies supplied to management having need for statistical summary data, not the raw data on forms

Compiling of information from the forms by more than one department, when such compilation could be done once, centrally.

Need for extra copies of forms

Departments that need raw information from the forms, but now get their information at second hand

Copies for departments, such as receiving, that at present write up parallel records by hand

Copies for departments that need the information on forms more promptly than provided after processing or through other reports

Channeling of information to production men who need such raw information for pre-planning purposes

Many copies of the forms being filed

Filing of either forms or data by individuals who have no use for such information but are merely "paper conscious"

Duplication and permanent retention of file records that are only of current usefulness

Anything more than a cross-referenced numerical, date, and vendor file for permanent record to serve the entire organization

Compilation of unnecessary information from the forms

Compilation of the same information by many departments

Compilation of information no longer required (such as CMP data)

Compilation of information for management controls that could be exercised by other means or at lower cost

Compilation of information by persons having no specific use for such data except at infrequent intervals

Inefficient physical layout

Constant filing being done in upright cabinets

File locations not readily accessible to those departments and individuals having most frequent need to refer to them

Improper grouping of individuals doing related work

Excessive "office traffic"

Lack of motion economy in routine jobs

the investigator should actually do the operations himself, or take enough time to thoroughly understand them and all their ramifications, if he is to be in any position to suggest changes for the better.

The clerk on the job may have some suggestions. These should be listened to, but always keeping in mind that the person involved directly in a routine rarely can see the overall picture which is so necessary before making any changes in any one operation.

Record the Routine

Many persons believe they can remember the detail of routine operations after studying them. But the accumulation of so much detail is usually beyond the memory of most people. The most difficult part of any study of paper flow is the correlation and coordination of the scores of details into an ordered organization of routine.

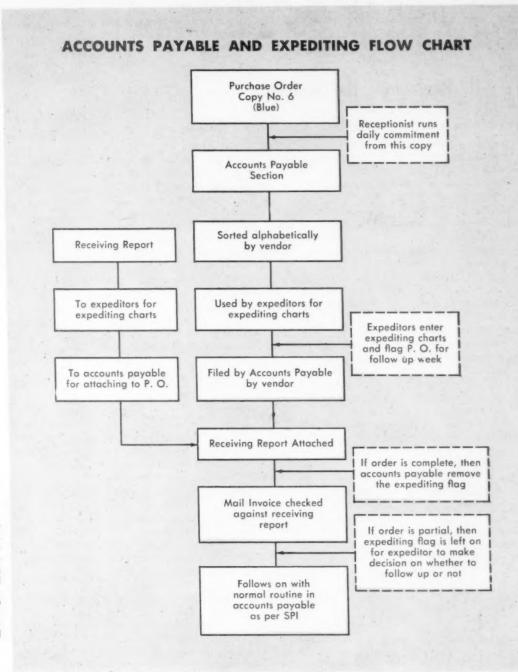
It may be argued that this has already been done and written up in the standard procedure instructions of the department. It is suggested that the reader who seriously believes this should hand the S.P.I. to the person involved in the routine and ask him to explain the purpose and operation of the paper flow. Most standard procedure instructions cannot be, and are not, written up in the detail required for any real evaluation.

It is suggested, therefore, that the investigator write a detailed description of the operation at the time he is studying it.

Re-examine the Work Load

When the investigator has spent enough time with each clerk, expeditor, or buyer, to understand the operations connected with each form, he will be in a position to re-examine the work load of each of these individuals. Many companies keep control information on the output of each of their workers, but few use it to reapportion jobs and work load. Over a period of time, unbalance and inequities crop up in any system, and these are apt to be perpetuated. The investigator, especially if he be the department head, will find that he has gained an excellent idea of the work load, and also the capabilities, of all the individuals who process the forms through the department.

Another useful by-product of such a study is the understanding of the problems facing other departments. Few forms are strictly "internal". Some of the information originates



Specimen flow chart for one copy of the Purchase Order form. Flow charts like this are effective in analyzing present practice and correlating routine operations. They are also valuable in the preparation of standard procedure instructions and for training purposes.

in other departments, or is distributed to them, and they must rely on it. No form such as the Purchase Order, for example, can be studied without consideration of its use in manufacturing departments, traffic, stores, etc. It may be found that their purposes can be better served, and their own work load relieved, by simple changes in the information contained on a form, or by its distribution.

Correlate the Results

At this point, the investigator will find his detailed notes on the individual operations to be most useful. Correlating the results of a study is difficult because of the sheer wealth of information available. One of the best ways to handle such a correlation is to put the details into the form of flow charts or sheets. A flow chart permits the interpretation of paper flow in a way not possible by any other means. Another useful by-product of this method is the fact that flow charts are valuable for training purposes. They should be included in any standard procedure instructions.

This is also a good time to go back and discuss the findings with the employees involved in the routine. He can get some tangible tips from them. He will also gain an important intangible—a feeling among the employees that they are helping to develop a better system, so that if and when any changes are introduced, there will not be resentment or resistance to them.

Evaluate the Results

When the study has developed sufficient information on the present flow of paper through the department and through other parts of the organization, there should be a study of the individual job descriptions and of the flow chart, to determine possible improvements. By this time, the investigator has already seen possibilities of eliminat-

ing work here and there, combining certain operations, improving others, and distributing the work load to better advantage. With these things in mind, he should start putting his suggestions into the detail of job descriptions and procedural instructions.

II. Replanning the System

Use of Flow Charts

The prime considerations are (a) the useful functions to be accomplished, and (b) the most efficient and economical way of accomplishing them, in each operation. Any suggested changes in paper flow should be diagrammed on a flow sheet. This is the most effective way to disclose, and permit the elimination of, duplicated operations.

They are useful, too, in gaining acceptance for any new routine. Precedent is so strong in the average business that the majority of employees do not question their activities, but will continue to collect the usefulness of these tasks has diminished. One must prove to everyone concerned that the new system will actually prove to be more economical, or will throw up more useful information. Complete explanation of the need on advantages of a change should be made to employees involved.

Flow charts also permit explanation of exactly how the new system will operate, so that innovations may fit easily and smoothly into the routine day-to-day activities of present employees. They will supplement, as well as aid in the preparation of new standard procedure instructions.

Redesign of Forms

Some of the changes involved in replanning paper flow frequently require redesign of the forms themselves. This includes the following considerations: the job that the form is to do; simplicity and convenience in its preparation and use; the need to obtain certain information quickly and accurately from the form; the number of copies required, and their distribution; cost of the form itself, and cost of handling. Form design is a highly specialized function, and many improvements have been made in business forms to increase their flexibility, versatility, and ease of handling. Competent advice is available from the majority of printers and manufacturers specializing in the production of business forms. Like the outside consultant, they have a wealth of experience in dealing with similar problems in other companies.

Establishing the Rouline

Before the introduction of any new system of paper flow, complete routine, or standard procedure instructions, should be written down in detail. The majority of employees understand the present system, or at least their part of it. They have a fear of the new or unknown, which frequently expresses itself in resentment, particularly if the new system is introduced from the outside. This can be alleviated by furnishing them with written instructions to which they can refer.

An important consideration is the estimate of cost savings under the

new system. In some instances, though direct cost to the purchasing department has been increasing, the indirect cost savings of speeding up the work and making it more effective more than compensate for this.

Estimate of Costs

In the majority of studies, it will be found that a reassessment of the paper flow will result in direct cost savings rather than increases. In one such study made by the writer, it was found that the work of two clerks could be completely eliminated without any loss of usable information and control.

The cost estimate should be made on an annual basis, and should include: cost of paper and printing; cost of handling; cost of filing: cost of record keeping; and an estimate of the savings in time of buyers, expeditors, and administrators in the convenience of the new system.

III. Evaluating the New System

Convenience

In evaluating the new system, convenience is a very important factor to be considered. Some individuals who are to be deprived of a personal file copy of the Purchase Order or other form will protest that they must refer constantly to their file copy to furnish information to members of the production control or some other department. In the majority of cases it will be found that the particular reference sources have just been adopted through habit, and that the main information sources could just as readily supply the information to production control or other groups, and this can be stipulated as standard procedure.

One must be careful in any analysis such as this not to place economy of operation above usefulness. Naturally, it is easy to eliminate copies or filing, but the important consideration is that such elimination will not destroy the usefulness and convenience of the system.

Cost

The concept of cost savings, though subordinate to usefulness and convenience, is nevertheless important. In today's keenly competitive business world, with consequent cost consciousness in all phases of management, a thorough evaluation of the costs involved in the paper flow in purchasing is a significant consideration.

The final consideration, and an extremely important one, is the element of control which is so necessary in the purchasing department. One must be careful in a reorganization of purchasing procedures not to lessen the necessary information and controls that the Director of Purchases requires in his responsibility to top management for the policies and activities of the purchasing department.

Control

One of the principal reasons for making such a study is to improve the controls by providing essential information, and by the speed, accuracy, and conciseness with which it is presented. An increase in cost might well be justified by better records and service in this respect. However, just as in the case of routine operations, many controls and reports are continued in a purchasing department long after the need for them has been eliminated. The Director should examine these controls and their real usefulness very critically to determine whether the cost involved is justified.

These are times in which cost conscious management is attempting to cut as many costs as possible. The cost of purchasing department operation is one of the areas under scrutiny. Important cost savings may be realized through an audit of purchasing procedures in the light of the methods here described.

The Pulse of Business

NOVEMBER, 1954

PURCHASING'S Summary of economic

conditions

Over-all business outlook is the brightest it has been in many months. This is based primarily on analysis of the underlying condition of business and not current business activity itself.

Business activity as measured by indices of production, employment, income, prices, etc., has been remarkably steady for almost a year. Although some individual industries have experienced sharp declines, these difficulties have been offset by favorable developments in other industries. The net effect has been over-all stability.

One of the best indicators of the basic condition of business is the change in the inventory position of business. When businessmen are optimistic about their future sales, they tend to order in excess of current requirements. When they're pessimistic, their orders lag behind sales. Thus, changes in the attitude of of business toward inventories tend to widen the amplitude of business changes.

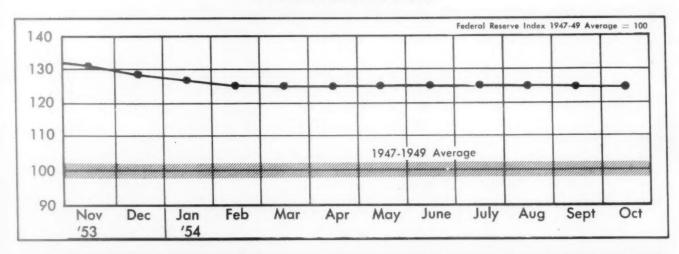
Inventory policies of business may be at a turning point. The end of liquidation appears imminent. For the first time this year, the ratio of stocks to sales is below its year ago level. Businessmen now have enough inventory to last, at current sales, 1.62 months. A year ago this ratio was 1.65. The most recent reduction in stocks of \$259 million contrasts with a reduction of some \$800 million the preceding month.

Assuming sales hold up - and there is no reason to believe they won't - goods will have to be supplied from current production rather than from inventories. The result will be a greater output and employment.

The consumer durable goods industries felt the brunt of the business decline which started over a year ago. They will ultimately benefit from the one industry that has really been booming in 1954 - construction. Residential building awards during September totalled \$77,332,000 - a whopping 53% over September, 1953. The house building boom will carry in its wake increased demands for consumer durables such as appliances, furniture, gardening tools, etc.

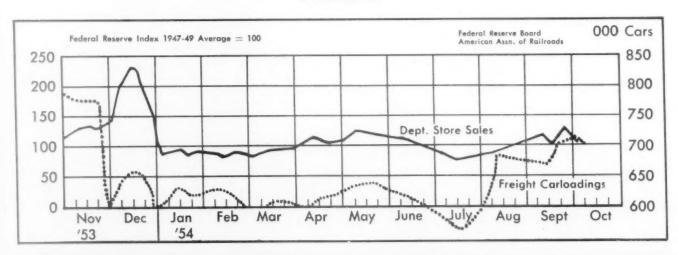
THE PULSE OF BUSINESS

PRODUCTION



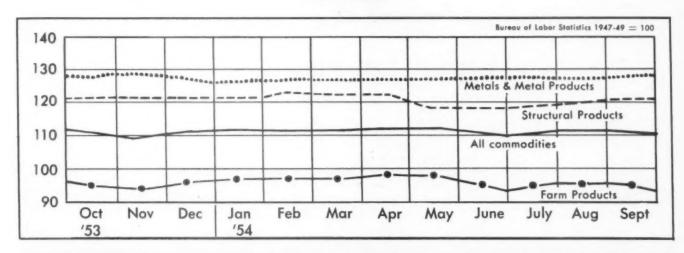
BASE LATES	MONTH AGO	YEAR AGO	% OF C	HANGE IN YEAR
Industrial Production Index 1947-49=100 12	1 124	133	0	- 6.7
Steel Production (Weekly) 000 net tons 1,673		2,146	+11.8	-21.9
Electric Power Production (Weekly) mil KWH 9,15		8,414	+ 0.7	+ 8.8
Bituminous Coal Production (Weekly) 000 net tons 8,076		9,632	+ 5.5	-16.2
Auto, Truck & Bus Output (Weekly) units 74,55		140,402	-9.6	-46.9
Petroleum Output (Daily Average) 000 bbls. 6,14	4 6,111	6,443	+ 0.5	-4.7

TRADE



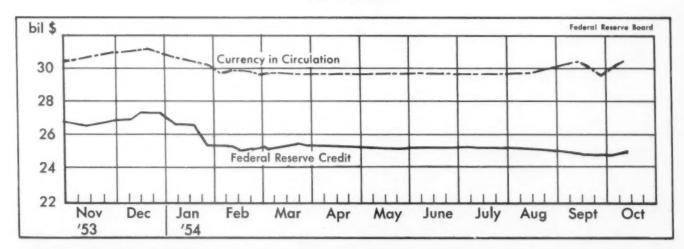
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF C MONTH	HANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.)	1947-49	=100 110	114	112	- 3.6	— 1.8
Commercial Failures (Dun & Bradstreet)		192	184	189	+4.3	+ 1.5
Freight Carloadings		703,193	676,616	804,070	+ 3.8	-12.5
Miscellaneous Carloadings	cars	347,827	338,615	393,685	+ 2.7	-11.6

PRICES



ENTRIBLE	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CH MONTH	ANGE IN YEAR
All Commodities (BLS) 1	947-49100	110.0	110.5	111.0	- 0.4	- 0.8
Farm Products			95.8	98.1	- 2.3	- 4.6
Metals & Metal Products 1			128.6	128.5	+ 0.3	+ 0.3
Structural Products 1	947-49=100	121.7	120.5	120.7	+ 0.9	+ 0.8
Steel Billets (Pittsburgh) n	net ton	\$64.00	\$64.00	\$62.00	0	+ 3.2
Steel Scrap, heavy melting, Pitts n		32.50	30.50	35.50	+ 6.5	- 8.5
Copper, electrolytic 1		.30	.30	.30	0	0
Rubber (rib-smoked sheets) 1		$.263/_{8}$.243/8	.207/8	+ 8.2	+26.0
Wheat, No. 2	ou. o		, ,	7.0		,

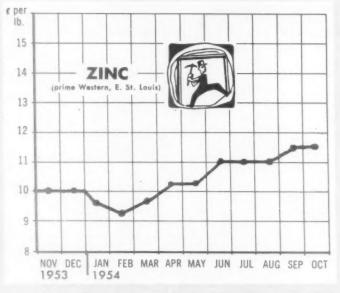
FINANCE

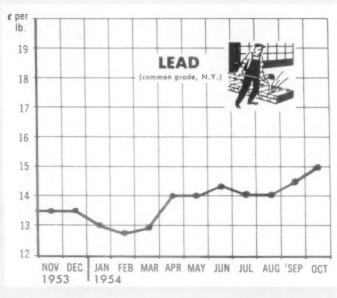


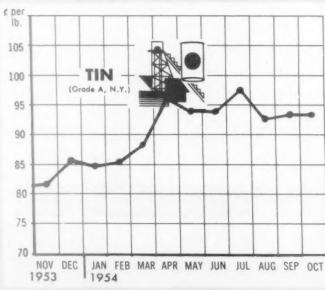
В	ASE	LATEST	MONTH AGO	YEAR AGO	% OF CH MONTH	HANGE IN YEAR
Stock Prices (Standard & Poor's) 1	1926=100	259.6	244.0	187.3	+ 6.4	+38.6
Bank Clearings (New York)	mil \$	11,253	6,852	9,638	+64.2	+16.7
Federal Reserve Credit	mil \$	25,501	24,705	26,238	+ 3.2	_ 2.8
Currency in Circulation	mil \$	30,051	30,115	30,374	- 0.2	- 1.1

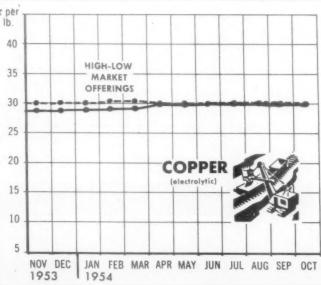
Commodity Prices Advance to Higher Levels

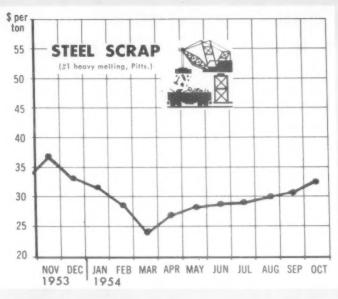
Seasonal influences, psychology, strikes, and a slight business pickup have combined to send prices of most commodities to their highest levels in some months. Leading the upward movement is lead which is now at its highest price since 1952. If government stockpilers refuse to accept offerings at the new price, it is doubtful if it will hold, however. The steel scrap market has also shown signs of perking up; mills are apparently increasing invintories of scrap in anticipation of more steel orders. Copper supplies are still in bad shape as a result of the long strikes at key mines.

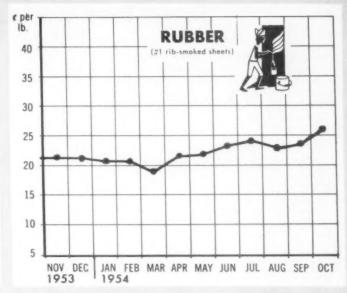


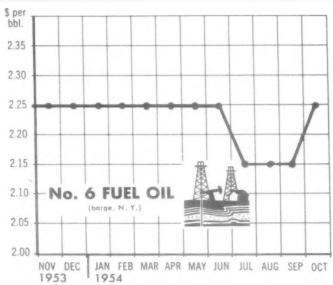


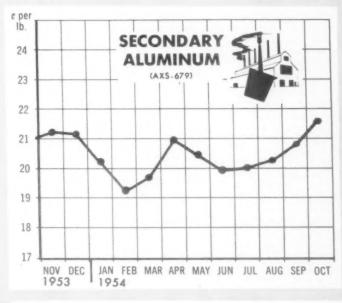


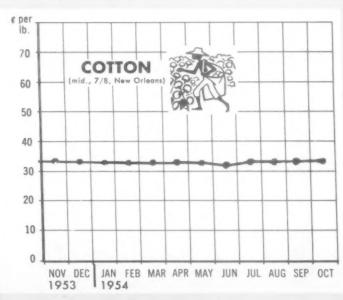


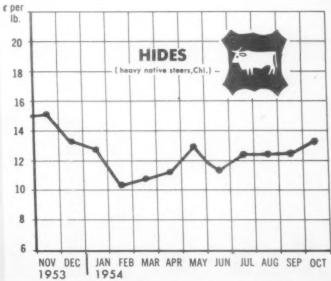








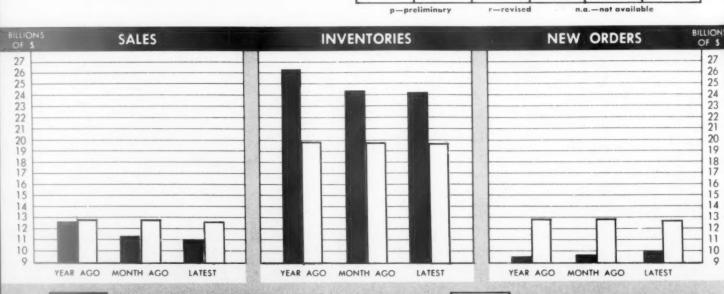




THE PULSE OF BUSINESS

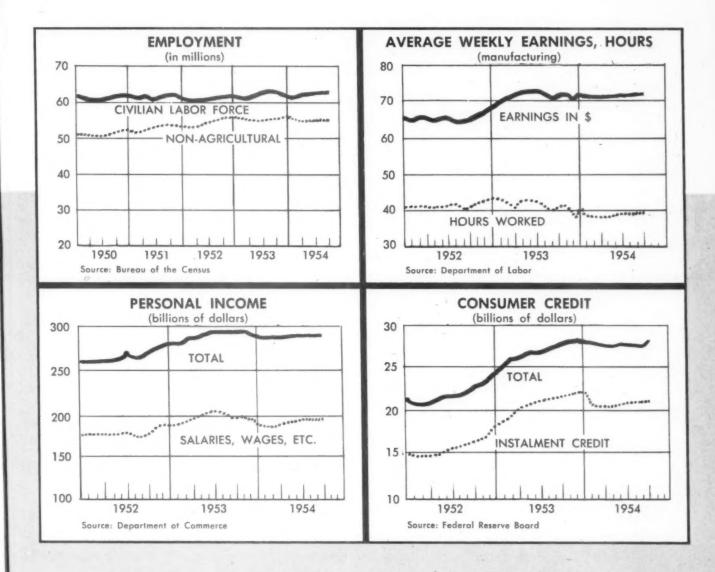
Sales, Inventories and New Orders

Value of Manufacturers' Sales	1953			1954		
Seasonally Adjusted				June	July (r)	Aug. (p)
(Millions of Dollars)	August	Apr.	May	Jone	3019 (1)	mog. (P)
Manufacturing industries	25,067	24,418	23,978	24,260	24,055	23,651
Durable goods industries	12,730	11,502	11,344	11,395	11,287	11,036
Primary metals	2,154	1,575	1,505	1,567	1,528	1,484
Fabricated metals	1,190	1,223	1,156	1,180	1,184	1,179
Electrical machinery	1,438	1,305	1,291	1,316	1,318	1,275
Machinery (except electrical)	2,099	1,939	1,862	1,901	1,920	1,892
Motor vehicles & equipment	2,355	2,052	2,083	1,960	1,813	1,777
Transportation equipment (exc. motor vehicles)	1,031	971 300	940 317	914 334	300	324
Furniture and fixtures	776	693	680	678	684	642
Lumber products (exc. furniture)	582	547	601	599	608	591
Professional, scientific instruments	326	356	354	364	354	367
Other industries, incl. ordnance	544	541	555	568	530	548
ondurable goods industries	12,337	12,916	12.634	12,865	12,768	12,615
Food and kindred products	3,645	3,977	3,827	3,844	3,748	3,764
Beverages	617	677	672	649	682	619
Tobacco products	314	305	304	299	301	308
Textile-mill products	1,098	1,073	1,115	1,064	1,040	1,044
Apparel	891	866	826	818	938	972
Leather and products	264	278 733	297	355	377	353 763
Paper and allied products	735	750	714	766	753 746	742
Printing and publishing	1,608	1,720	769	1,724	1,675	1,678
Chemicals and allied products	2,081	2,162	2,089	2,202	2,134	2,060
Petroleum and coal products	409	375	357	377	374	n.a.
Book value of Manufacturers' Inventories Seasonally Adjusted						
	1	1	1			1
(Millions of Dollars)						
Manufacturing industries	46,888	45,183	44,798	44,535	44,194	43,878
Durable goods industries	26,788	25,345	24,926	24,689	24,383	24,228
Primary metals	3,456	3,226	3,153	3,071	3,107	3,092
Fabricated metals	2,914	2,837	2,768	3,062	2,773 3,049	3,053
Electrical Machinery	3,424	3,167 5,297	3,103	5,148	5,097	5,096
Machinery (exc. electrical)	5,690 3,476	3,189	3,098	3,021	2,899	2,803
Motor vehicles & equipment	2,720	2,690	2,652	2,691	2,622	2,665
Furniture and fixtures	681	665	661	650	664	646
Lumber products (exc. furniture)	1,096	1,010	1,003	981	958	968
Stone, clay and glass products	875	916	919	895	883	865
Professional, scientific instruments	875	883	888	874	862	860
Other industries, incl. ordnance	1,581	1,465	1,459	1,465	1,469	1,425
andurable goods industries	20,100	19,838	19,872	19,846	19,811	19,650
Food and kindred products	3,411	3,596	3,544	3,492	3,468	3,463
Beverages	1,186	1,188	1,195	1,209	1,222	1,179
Tobacco products	1,839	2,412	1,877	1,887	1,930	1,904
Textile-mill products	2,646	1,762	2,412	1.762	1,760	1,727
Apparel	1,876	580	1,792	595	580	577
Leather and aroducts	1,024	1,047	1,061	1,046	1,021	1,016
Printing and publishing	773	777	756	748	734	724
Chemicals and allied products	3,142	3,061	3,053	3,085	3,146	3,156
Petroleum and coal products	2,744	2,738	2,791	2,771	2,790	2,779
Rubber products	897	812	810	829	784	n.a.
Manufacturers' New Orders (Adjusted)						
Manufacturing industries	22,339	23,017	22,819	22,876	22,551	22,71
	10,139	10,021	10.050	9.985	9,700	9,97
urable goods industries	12,200	12,996	12,769	12,891	12,851	12,742



DURABLE GOODS

NON-DURABLE GOODS





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Straws in the Trade Wind

- is beginning. Laws are being tested in 12 states and before the U. S. Supreme Court. It is expected that Attorney General Brownell's committee, which is studying fair trade, will take a strong stand against it when it reports next month. The battle won't be one-sided, however. Fair trade's friends include a number of Congressmen.
- AUTO PROSPECTS BRIGHT Auto sales outlook for 1955 is very good, a Crowell-Collier survey reveals. The industry has about 5,600,000 potential customers for new cars. The auto market is now in the best shape it's been in some time. Dealers' stocks are down to the lowest level since June, 1953. Despite heavy production cut backs to clean up excess inventories, 1954 will still be the third best year in auto history with sales of about 5,300,000 vehicles.
- STEPPED-UP STOCKPILING The government will spend a minimum of \$145 million this year for stockpiling of 22 strategic materials.

 In addition to this stockpile, another \$900 million is allocated for purchases for a so-called "long term" stockpile. Into this hoard will go government purchases which are made primarily to support depressed metals. In addition, foreign metals will be imported under barter deals. These huge market support funds will make for very stable metals prices throughout the year.
- PLASTIC PIPE BOOM Six years ago sales of plastic pipe were \$6 million. This year they'll top \$25 million; by 1960, \$90 million. These optimistic forecasts are based on the usefulness of the material and the tremendous expansion in production of the basic chemicals used in its manufacture. Progressively lower prices are quite possible with improved technology. Large scale fabricating and marketing operations will be carried out by such companies as U. S. Steel and Republic Steel. Other big steel companies are expected to enter the field soon.
- will be a reality in five to ten years, predicts Walter E.

 Kingston of Sylvania Electric. Allis-Chalmers is going ahead
 on a 20,000 kilowatt pilot plant. Experience gained from this
 project can be applied to larger, more economical units. In
 coal-hungry Britain, much larger facilities have been approved.
 The first real commercial unit will probably be built in England.

The Case for . . .

Buying from the Distributor

By N. J. MacDonald, Vice President The Thomas & Betts Co. Elizabeth N.J.



N. J. MacDonald joined The Thomas & Betts Co. in 1921 as a junior salesman, and came up steadily through the ranks to his present position. During Warld War II he served in Washington as electrical industry advisor to the Distributors Branch of the War Production Board. In this role he helped formulate the industry's priorities regulations and policies. Over the years, he has headed seven different committees of the National Electrical Manufacturers Association.



A well stocked wholesaler's warehouse is the equivalent of a current inventory for many customers' plants from many sources of supply.

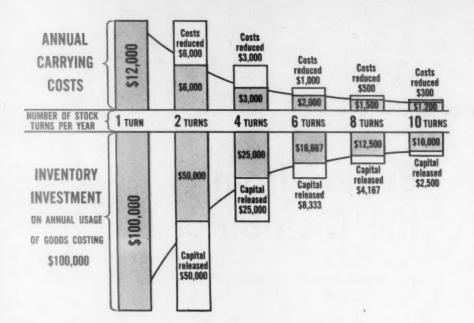
Shall we buy from the manufacturer or from the distributor? Every purchasing department faces this question and has to resolve it as circumstances indicate, after weighing the factors of quantity, price, delivery and service. Frequently this analysis results in a mixed policy.

There is another factor that also enters into the consideration—the manufacturing supplier's distribution policy. This article is written from a manufacturer's point of view. The Thomas & Betts Co., maker of electrical fittings, markets its products exclusively through wholesalers.

WHEN a manufacturer sticks to a policy of selling only to wholesalers for more than 25 years, there are obviously good reasons behind it. Since 1926, our company has relied exclusively on wholesaler distribution. We feel that it has helped both us and the users of our products. We are convinced that this method of selling cuts our operating costs and keeps our prices down, that it simplifies the buyer's

job, and provides a maximum of good service to the user.

Sentiment plays no part in our undeviating policy of wholesaler distribution. Wholesalers are especially equipped to carry out the distribution function economically. Their costs are spread out over the hundreds of different products they carry, so that they perform essential functions cheaper than we can ourselves.



Basically, these are: warehousing at point of need; selling; giving routine technical information; financing; and extending credit. We are able to run a large business on comparatively small capital because our distributors act as bankers and extend credit while paying us every 30 days. This enables us to meet increased factory payroll and expanded inventory while maintaining complete national distribution.

Our credit and collections are handled quickly and simply. Our office force is kept relatively small and credit losses are practically nil. Without these safeguards, increased expenses would be passed on to the users of our products. The purchasing agent who bought direct from us would pay more than he now pays the wholesale distributor.

In the same way, the distributor (Please turn to page 352)

Wholesalers' stocks help keep plant inventories down. This chart, based on a study made by "Electrical Wholesaling," shows progressive reduction in costs and increase in capital released for other purposes through greater number of stock turns per year.

Mr. MacDonald backs his thesis with the case of an Indiana machine tool plant which had been buying four electrical items from three different manufacturers at scattered locations. Delivery time on his orders ranged from 30 to 60 days. By purchasing from a local wholesaler, the company issued only one order, got the needed items on a 24-hour basis, and handled only one shipment and invoice.



WHAT THE WHOLESALER DOES

CUSTOMER SERVICE:

- Delivery. Through emergency and 24-hour service, the wholesaler's large stocks are available to give quick deliveries and prevent production delays.
- Engineering. Based on wide experience, the wholesaler's technical and source knowledge aids in planning installations and selecting best and most economical equipment.
- Locating Equipment. Wholesalers have wide source contacts. They know where to find hard-to-get items—and can get them.
- Product Quality. The wholesaler adds his stamp of approval to the manufacturer's guarantee when he decides to carry a product. Unless an item performs satisfactorily, he doesn't get the repeat orders that make his operation profitable.
- New Products. The wholesaler has ready technical and price information concerning new products. His salesmen keep manufacturers posted on latest field conditions and give valuable suggestions regarding product improvements.
- Adjustments. His sales and service people are in a good position to judge fairness of customers' complaints so that prompt and satisfactory adjustments are made on returned goods.

CUSTOMER COST SAVINGS:

- Stock Room Handling. Costs of personnel, materials handling equipment and pallets are reduced.
- Stock Depreciation. Rapid turnover avoids corrosion and other aging factors that take their toll of products stored over long periods of time.
- Product Obsolescence. Availability of new materials and changes in user requirements result in an estimated annual write-off for obsolescence up to 10% of stock costs. This is avoided with rapid turnover.
- Inventory Investment. Lower inventories save the 6% charge on funds invested in larger stocks.
- Floor Space. Big stocks require storage space and facilities.

 Standard accounting practice figures this overhead cost at 30% of total inventory value, based on a 6-times annual turnover.
- Insurance and Taxes. In many communities, as much as 3% of total value goes for local taxes on physical inventories and fire and sprinkler insurance.
- Freight and Cartage. The wholesaler buys in large quantities to get the benefit of lowest freight rates, and delivers to customers by truck with resulting economies.



By Cason Rucker, Sales Engineer, Process Equipment Division, General American Transportation Corp., Louisville, Ky.

HE BOGEY MAN will get you if you don't watch out!" That was what we heard as children.

Now that we are big boys, the Bogey Man goes by another name. He has become "They".

Who is "They", anyhow?

Is it a catch-all word to cover up our own laziness and ignorance? Is it a convenient way of passing the buck? Or is it simply a reflection of our lack of interest and initiative in facing a situation squarely and finding a sound solution on its own merits?

Why didn't "They" do it before? PURCHASING mentioned this recently as management's frequent reaction to the report of value analysis savings. When this comment was made, "They" were supposed to be properly deflated, despite the fact that they had worked hard at the project and had proudly come up with important results.

But maybe it wasn't the right answer. Perhaps "They" had not been given the incentive to make such a study before. Maybe top level wasn't receptive to such thoughts and suggestions in the past. Quite possibly

the guilty "They" were really the ones sitting behind the mahogany desks.

The solution suggested in that instance was that the nebulous "They", held to be at fault, be forgotten, and that responsibility for the future be placed on a definite program with recognized responsibilities. "They" become real persons—the fellows in the shop and in the laboratory, and in the office next door.

It happens in all phases of business and business relationships.

"They" made a salesman perfectly wild when his entire return trip to New York from Texas was cancelled when he neglected to confirm his return reservations. "They", in this instance, comprised the entire Air Line, and he would cheerfully have blown up the whole organization. However, a brief explanation by an understanding attendant in Houston, plus that attendant's hard work in reinstating the cancellation, clarified the picture. "They" turned out to be a bunch of nice guys trying their best to avoid running empty planes and keeping other travelers waiting. From their standpoint "They" consisted of careless and inconsiderate travelers, giving no heed to Air Line regulations; but "They" turned out to be a harassed salesman with a big territory, trying hard to make his quota and still be home for the week end, with other things on his mind than the unconfirmed ticket in his wallet.

To finish that story, we should say that now the salesman makes it a point to reconfirm his reservations, and the Air Line runs its Constellations full. At least, by confronting "They", a nasty feeling was cleared up to the advantage of both sides.

The relationship between purchaser and salesman is usually smooth across the desk. Yet, too often, they drive each other to distraction because "They"—meaning the other guy—just won't understand both sides of the picture. The salesman and the purchasing agent both know that the machine will be bought next year for a required delivery date. Yet the P.A. simply won't place the order. The salesman can't understand that the P.A. isn't authorized to make a capital equipment commitment with a Board

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of Directors' approval and appropriation. The P.A., on his part, seems incapable of comprehending that to get the machine entered on a schedule to meet the required delivery, the order must be placed now.

Result - an impasse with both parties standing on their Constitutional rights and putting the blame on "They"? Not necessarily. In a case of this sort recently, both sides discussed the problem in an objective, give-and-take manner. The Board of Directors could not include the order in this year's budget, but the supplier had to get it in this year's schedule. An arrangement was then made, altogether above board, whereby the purchasing agent gave the salesman a verbal order, for confirmation after the first of the year. This enabled the salesman to enter the order in time to meet the necessary delivery. Poor practice on both sides, maybe. But both parties were reputable and nothing was lost. To the contrary, a great deal was gained, to the advantage of both. However, to reach such a satisfactory compromise, they each had to drop their self-righteous attitude and understand who "They" were, in each case, holding up the other

"They" won't like it. That's the common answer to many a man from his co-workers when he thinks he has a good idea. "They" may be the department head or the top brass. For the purchasing agent, "They" may be the collective shop personnel, who are accustomed to using a different product. Yet, if he has the gumption and tact to lay it before the man who counts, the response is often electric. "They" usually turn out to be just the reverse of an ogre. In fact, "They" frequently have an empty suggestion box idly awaiting such ideas.

The superintendent of a large retail outlet was tearing his hair because of his tremendous delivery "They"-the customers-invariably insisted on delivery the same day as the purchase. "They" were roundly cussed, on the side, by the salesmen who consistently gave in to save the sale. In desperation, the boss set up a definite schedule of deliveries that still gave reasonable service, explained the reasons to the salesmen, and required them to sell the reasoning to the customers. Sure, some sales were lost. Some of the customers complained bitterly about "They" in the store management. But overall, sales held up and costs came down. The hair is growing back on the worried bald spots of the salesmen's and delivery department's heads. "They" were faced and overcome.

A young roller bearing engineer was intrigued by the possibilities of a new design anti-friction bearing, but the old-timer experts in his department assured him that "They" wouldn't like it. So the idea was dropped. "They" was that old, indefinite, all encompassing term. Ten years later, another engineer had the same idea, and the new design became standard, replacing the old

LET'S FACE IT

Before you give up on a good idea because you think that "They" will not approve or go along with you, remember:

> "They" may not be as terrible as you imagine.

"They" may never have thought or said the things that are attributed to them.

"They" will probably turn out to be nice guys, trying to do their own job.

"They" have problems and reasons of their own, that you may not fully understand.

To them, you are "They".

ABOVE ALL:

Never use "They" to take the blame for your own shortcomings or inertia.

design. How many others were stopped by the experts waving that red flag labelled "They"? And could the advertised opinion of "They" have been caused by some innocent chance remark, overheard and mis-

understood by an eager flapping ear?

"They" - the customer - gave a heavy equipment manufacturer considerable trouble by misaligning their new machinery. "They" simply couldn't follow instructions. The manufacturer one day had a brain storm and revised his instructions. As he rewrote them, he had "They" in mind and wrote accordingly. It used to take an erection engineer days to straighten out the installation. Now, the purchaser's own men take pride in their ability to square away the job themselves. The seller's installation check engineer now spends only a couple of hours where he used to fret away whole days. "They" weren't so dumb when the project was clarified.

The advertising manager of a material handling company was criticized because his ads were not dramatic, different, and startling. Why? Because "They" wouldn't read them. However, it turned out that "They" were the 95% of readers who were not interested anyhow, due to the highly specialized nature of his product. The remaining 5%—the actual potential buyers—were interested in the facts. They read

the ads, and bought. One of the larges

One of the largest retail chain stores has Main Office Representatives constantly circulating among the various departments in the field, soliciting ideas for the purpose of spreading them throughout the organization. A new trainee in the paint department received something of a shock when his idea of a preprinted postal card for soliciting new business from old customers was taken back to Chicago. He protested that it was unimportant, that "They" in the ivory towered Home Office must surely have all usable new ideas by then. So the M.O.R. let down his hair and admitted that "They" were just a nice group of desk men trying to help the field men help them. It was his job, mainly, to humanize the gods to the extent of stimulating helpful suggestions from those with their feet wet at the branch outlets.

The Navy calls it Scuttlebutt. The layman terms it Grapevine. The housewife says it's Gossip. But in every case it is accepted as sheer gospel, right out of the horse's mouth. Why? Because "They" said it was so. And who is "They"? The Admiral? The President? The store-keeper? Sh-sh! Don't say. For that would spoil it all by making you think. Keep it general. Keep it indefinite, Blame it on "They".

When the Subcontractor Shows a Loss

By Keenan Goodman

Purchasing Agent Research Associates Los Angeles, Cal.

WHERE competitive bids are obtained from manufacturers of standardized products, it can be reasonably assumed that the low bidder will not lose money on the transaction. After all, he should be in a position to predict his production costs with reasonable accuracy and consistency. Furthermore, if he does lose money on a given order, it is very unlikely that he will ex-

The industrial economy isn't ready for the principle of a guaranteed profit for the supplier. But there have been a few notably successful examples of long-range procurement policy developing supply sources through some form of subsidy, industry-wise or area-wise. For most companies, the problem arises only in isolated cases where a subcontractor gets into difficulty. Under those circumstances, the buyer who has made his decisions on the basis of asking himself:

"What are these goods worth to me?"

may do well to ask himself a second question:

"What is this supplier worth to me?"



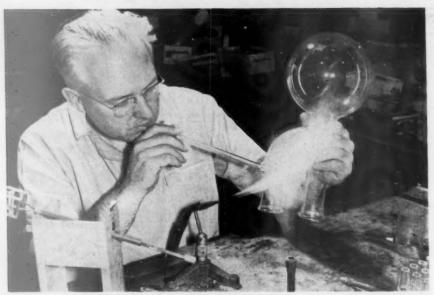
Who should take the risk on the unknown cost of a new part—buyer or subcontractor?

pect to be paid more than the price he has quoted, and there is no good reason why he should be.

These broad assumptions, however, cannot be made in respect to dealings with subcontractors. There are several reasons why this is so. For many jobs of the type commonly subcontracted, there is no precedent or experience to enable him to predict costs accurately. Even with the scientific application of the "learning curve" principle, the practical result is but a target price, with the assumption that there will be losses incurred in the early stages of the contract. Furthermore, many of the most desirable subcontracting firms are relatively small, or are likely to put their emphasis on specialized production skills, with correspondingly less attention to the finer points of cost accounting.

Finally, assuming that both of these difficulties are overcome, there is always at least the possibility that his cost predictions will be negated by the buyer's need for engineering changes or faster delivery schedules, and that such things as material shortages will make it impossible for him to perform with anticipated efficiency.

There are, of course, several pricing methods that can be used to cope with these factors. It was this sort of consideration that led the government to adopt the cost-plus policies that prevailed in wartime. That was a costly experiment. Instead of guaranteeing a fair profit for honest effort, cost-plus pricing tended to encourage inefficiency, and sometimes downright dishonesty,



Made-to-order glassware may be important; good sources are few and far between

since there is no incentive to minimize expenses when earnings depend on the magnitude of expenditures.

However, cost-plus was not the worst possible example of how to deal with subcontractors. It did enable the United States to mobilize the maximum of production facilities and to accomplish a monumental production job when it was virtually needed.

Out of Business!

A far more deplorable example of what not to do, in this writer's estimation, was recently provided by a prime contractor in dealing with a small company that manufactured a special type of glassware. The owner of this small company underestimated the cost of turning out a very large order by a margin of nearly \$10,000, which was really serious money to a concern of that size. He put his problem up to the prime contractor. When the latter refused to renegotiate, he went ahead and made delivery at the quoted price, believing he could get a bank loan that would tide him over until he could land another large order at a better price and recoup his loss. The firm was in a strategic position in the industry, and there was every reason to believe that this could be

However, the bank loan didn't materialize, and the subcontractor went out of business. The chief mourner in this instance is the prime contractor, who lost his most logical—and, in the long run, most economical—source of supply. Now he is forced to place his glassware orders with a source nearly 3,000 miles away. In addition to paying a

higher price than the bankrupt vendor would have charged for the merchandise, he has to foot a bill amounting to more than \$10,000 annually for added shipping costs.

Major companies in the aircraft industry must have been tempted similarly to decimate their subcontractors following the government contract cutbacks in 1945 and 1953. On both these occasions, it became possible for airplane manufacturers to do for themselves, in their own plants, much of the work that had previously been allocated to vendors. Fortunately this course was not followed. Most firms in the aircraft industry have learned to place great reliance on their subcontractors, and in this matter they also show a deep respect for the opinion and judgment of their experienced purchasing personnel.

Of course, subcontractors to this industry suffered some losses in 1945 and 1953. But they didn't suffer nearly as much as they might have if the prime contractors had followed a policy of blind self-interest in order to minimize their own immediate losses. The industry as a whole is in a much stronger position, knowing that these subcontractors are still in business, ready to expand and produce more than ever before if the need should arise. That's a pretty comfortable feeling for the nation at large, too, from the standpoint of national security.

Many business organizations are not in a position to pursue such a magnanimous policy. However, in most cases where such a situation arises, prime contractors would be wise to ask themselves:

Is it enlightened self-interest for us to allow our subcontractors to

lose money on our orders?

If the vendor in any given case is an unessential supplier, or a poor or unreliable performer, the answer would be: "Yes. It's just good business."

But if the vendor is merely the victim of circumstances, and has usually served the best interests of the prime contractor in the past, the answer could well be "No". The most constructive course would be, not casually underwriting the loss, but helping him to strengthen his position and showing him how to estimate and reduce his costs. It does seem logical that a buyer should not allow his essential suppliers to withstand an actual loss on his orders, as a consistent policy.

Don't Covet Profits

Assuming that a subcontractor performs efficiently and satisfies his customer, the question of what profit he earns should be a matter of little or no concern to the buyer. If the buyer has done a good job of obtaining bids and selecting sources, it should be obvious that no competitive firm would have done the same work for less or on a lower margin of profit. However, this is a fact of business life in our free enterprise system that is often overlooked.

A machine tool manufacturer was recently horrified to learn that one of his vendors was earning 100% profit on each order he placed for large castings. After investigation disclosed that other vendors were unwilling to do the same work for less money, he decided to establish his own foundry and produce his own castings.

It was a costly undertaking, involving not only a large capital investment in equipment, but a substantial expenditure for experimentation. Only after the new foundry was installed and operating, the manufacturer and his accountants learned why it would have been far more economical to continue buying castings from the subcontractor.

He had been quite right in thinking that he could produce castings as cheaply as any vendor, and he was saving that big profit margin in the process. But unfortunately he didn't use enough castings to keep the foundry busy. So, when the overall cost of his investment was computed and compared with the gross amount of money he was saving, he was startled to discover that in order to get back what he had spent on the operation, he would have to run it for 100 years!

Commodity Purchasing

By Charles C. Nolan, Purchasing Agent, National Pneumatic Co. & Holtzer-Cabot Divisions, Boston, Mass.

UR organization - National Pneumatic Co., Inc. and Holtzer-Cabot Divisions-is the result of a merger in 1949 of two companies. National Pneumatic is a leading designer and manufacturer of door operating and safety equipment (pneumatic, electric, hydraulic, and vacuum) for the transit industry and railroads and industrial actuators and controls. Holtzer-Cabot produces electrical rotating equipment. There is now one manufacturing division for all products of the combined companies, which are sold through six sales divisions.

We have instituted the policy of "commodity buying" in the organization of our purchasing department, and have found it to be very effective. By this we mean that all purchased commodities are broken down into five categories, and each of these categories is assigned to a particular buyer, who serves all product divisions in case the item is common to more than one division. In other words, it is the item rather than the end use that governs responsibility. We go farther than this in that each buyer is held responsible for the complete purchase of the items or parts coming within his classification, from the time a requisition reaches his desk until the time that the material in question has been received and has passed Receiving Inspection. The allocation of commodities is indicated on the organization chart shown herewith.

We believe this to be good basic purchasing. It tends to make a buyer a specialist in his field and thereby increases his competence in judging and keeping in close contact with materials, sources, and market conditions affecting the products he buys. It is also a great help to salesmen and manufacturing representa-



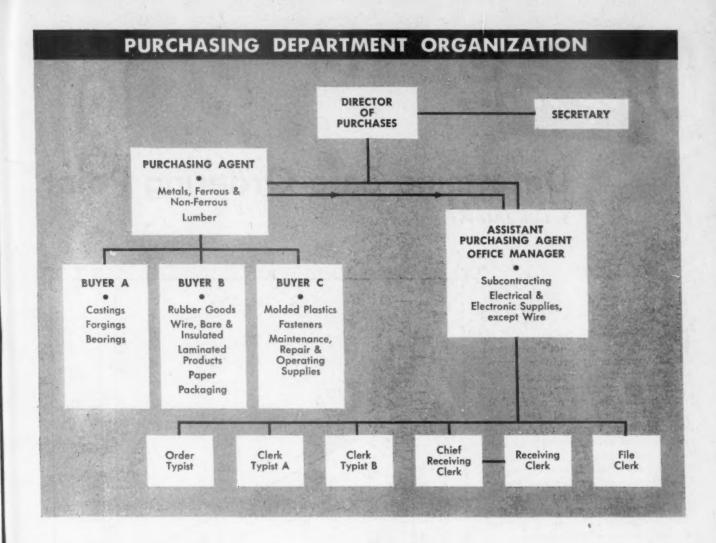
CHARLES C. NOLAN has spent 15 of his 33 years in purchasing, both for the Navy Department and for manufacturing industry. He heads the compact purchasing department for National Pneumatic Co., Inc., and Holtzer-Cabot Divisions described in this article.

tives when they call on us, for it does away with the necessity of a salesman seeing more than one buyer. It also works the other way, since the vendor doesn't have three or four buyers from our company contacting him. There is one point of contact, thoroughly familiar with the product and the transaction, at every stage of interview, negotiation, and correspondence. It has also proved to be a definite asset to our engineering department, wherein our buyers can give first hand information to the engineers on their commodities. Thus they gain knowledge not only for themselves, but for other departments that do not have direct outside contact with suppliers. Giving the buyer complete responsibility has improved our purchasing and has been a benefit to the entire organization, as each buyer will be extremely careful when he first places his orders, knowing full well that he is the person—and the only one—responsible for the arrival of purchased material in time to meet production schedules and, ultimately, to keep our customers happy. It has also been demonstrated that when an item has been purchased correctly in the beginning, the buyer's expediting load will be that much less.

Obviously, under this system, expediting becomes one of the buyer's chief responsibilities. To cut down

EXPEDITING COPY PURCHASE ORDER ORDER NO. PNEUMATIC CO., INC. HOLTZER-CABOT DATE. 125 AMORY STREET, BOSTON 19, MASSACHUSETTS, U. S. A. PRINSPELINIA . CHIADO . NIN TORD . CLIVILAND . CHIADO . CHIADO . CHIADO DATE NEEDED. PHONE JAMAICA 4-7000 SHIP NOT IMPORTANT REFER ALL INQUIRES REGARDING THIS ORDER TO: F.O.B. TERMS SHIP VIA DESCRIPTION QUANTITY PART NO. PRICE HOW INQ. REP. QUANTITY WILL REC. TRAN. CONTACT EXP. DATE QUANTITY DATE QUANTITY TO: PRODUCTION CONTROL PURCHASE ORDER NO .-FROM: PURCHASING DEPT ... PART NO. SALES NO.__ ▲ The expediting copy of the Purchase Order is a key form in carrying out the responsibilities of commodity purchasing, where each buyer is responsible for assigned products from requisition to receipt and acceptance. DELIVERY REQUESTED _ORIGINAL PROMISE NEW PROMISE COMMENTS_ and acceptance. **◄** Waiting time on ma-■ Waiting time on machines has been eliminated by advising the Production Control Department of material delays, so that machines can be put on other work. 97.8% of purchases are delivered on schedule. DATE RECEIVED RECEIVED BY_ FORM 627 MONROE

schedule.



on the expense of additional forms for use in the department, one copy of the purchase order is used as an expediting copy, with space set aside for all pertinent information and remarks resulting from the follow-up actions taken by each buyer. In the event purchased material will be late in arriving at our plant, despite the buyer's best efforts, the Production Control Department is notified immediately, so that machines that have been set aside for a particular job can be promptly reassigned to another project. We maintain an "Expediting Book", which is the open file of expediting copies of orders, filed first by commodity, secondly by vendor, with a cross reference by part numbers.

A permanent price record is kept, with competitive prices posted on cards. This enables the buyer to review any history needed prior to placing a new order, such as price, past performance, quality, and delivery. These are all prime factors in the placement of new business.

The Purchasing Agent, in addition to buying metals and lumber, is the

supervisor of the department, answerable to the Director of Purchases. The Assistant Purchasing Agent, who handles our subcontracting, also serves as office manager. Our buyers require very little supervision under this system. They report directly to the Purchasing Agent, who in turn assigns the work load to the entire department as the requisitions pass over his desk, according to the commodity categories that have been set up. The delegation of responsibility and authority to the buyers gives them an added incentive, realizing that their efficiency on the specific job makes our department important to management in overall results.

A good example of what this system has accomplished for us is the fact that we have been able to cut down our behind-schedule deliveries from approximately 20% to a mere 2.8%, and the down time on needed machines is nil.

A question sometimes raised in respect to this type of organization, with the lines of responsibility so clearly drawn, is what happens in

case a particular buyer is absent. The answer to this is flexibility of personnel and accuracy of records.

Having several entirely different and diversified divisions, we purchase in the vicinity of 6,000 separate items. The purchasing and inventory load is a heavy one, even with the division of responsibility. But each buyer, though a specialist in his own commodities, can pinch hit for any other buyer, since our entire order board for each commodity is entered in the Expediting Book, which has all the up-to-date information readily at hand. Thus absenteeism is not the insurmountable problem it might appear to be at first glance. And, as an overhead department, we are able to keep our own purchasing budget at a minimum, showing an additional saving to management.

We have found the "commodity purchasing" set-up extremely efficient and flexible, enabling us to cope with changing situations as they arise, and helping us toward our goal of good, sound, fundamental purchasing.



Determine Safe Ordering Point

By Louis J. Murphy

DLANTS serving industries that produce at a continuous rate pose special purchasing problems. This chart gives quick and accurate solutions to one of the most important problems in this type of production -the most economical orderingpoint quantity. It correlates ordering reserve, total procurement time and rate of consumption of raw or manufactured materials. It is suitable for all materials in regular use today, regardless of the ordering unit specified. For instance, you can use the chart for pounds of cement, gallons of acid, number of manufactured parts, reams of paper, etc.

Example: An industrial plant uses 4,000 lb of lead per year. What is the minimum ordering-point quantity if total procurement time for lead is 6 weeks and a safety margin of 20%

is desired for stores?

Solution: Enter the chart on the left at the ordering reserve of 20% and draw a straight line through the procurement time of six weeks on the right. From the intersection of this line with the pivot, draw a straight line through the consumption rate of 4,000 lb per year on the left. At the intersection with the central stem read the ordering-point quantity as 553 lb of lead. Thus, an order for additional lead would be placed when the quantity in storage was 553 lb.

Using the ordering-point quantity found from this chart prevents delays and stoppages of production from a shortage of materials. Note that total procurement time must be used when entering the chart. This includes the entire period that elapses between preparation of the purchase order and delivery of the material to the plant. Where rate of use exceeds maximum chart

value, simply move the decimal point one or more spaces to the left to bring the rate within the range plotted. Solve as described above, and adjust the decimal point in your answer by moving it back to the right.

This chart is based on the formula: Q=RTS

where:

Q=ordering-point quantity in any units desired.

R=ordering reserve desired (per cent).

T=total procurement time (years).
S=rate of material consumption
(units per year).

The chart gives you the ordering point, not the quantity to be ordered. That is a separate calculation.

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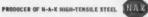
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Validity of Restrictive Contracts

By Leo T. Parker

READER asks how he can determine when a restrictive contract involving patented merchandise is valid and enforceable. This question of law is important to all purchasers.

The established law is as follows: The owner of a patent or secret process can, without violating any anti-trust law, restrict the sale of his merchandise in any manner he chooses. Moreover, he may set the selling price of his patented or secret processed merchandise without any liability or likelihood of violating anti-trust or non-monopoly laws. But the instant the purchaser agrees, either orally or in writing, not to sell merchandise in competition to that manufactured under a secret or patented process, the whole contract is rendered void and unenforceable. Thus it is the buyer's act that controls the outcome of any future suit involving the contract.

On the other hand, it is important to know that the higher courts hold that sale contracts are valid, under which a seller gives to a purchaser the exclusive right to sell specified merchandise in a stipulated territory. Such a contract is not in violation of anti-trust laws, notwithstanding many arguments to the contrary. In other words, a seller may rely entirely upon the validity of a written contract to his favor, irrespective of special price or marketing restrictions, involving merchandise manu-

factured under a secret process or patent protection.

Generally speaking, in the past a majority of courts held that an inventor has no special legal rights on an invention for which he has applied for, but not been awarded, a patent. However, a late higher court decision holds that if the unpatented invention is manufactured under a secret process, the inventor has the same legal rights as where

invalidate the whole agreement by a simple violative clause—e.g., sale contracts are invalid and void under which a purchaser of goods is obligated not to purchase merchandise from competitors of the seller and not to sell competitors' goods.

Exclusive Sale Contract

See the case of Vann v. Toby, 260 S.W. (2d) 114. The testimony in this litigation disclosed these facts: One

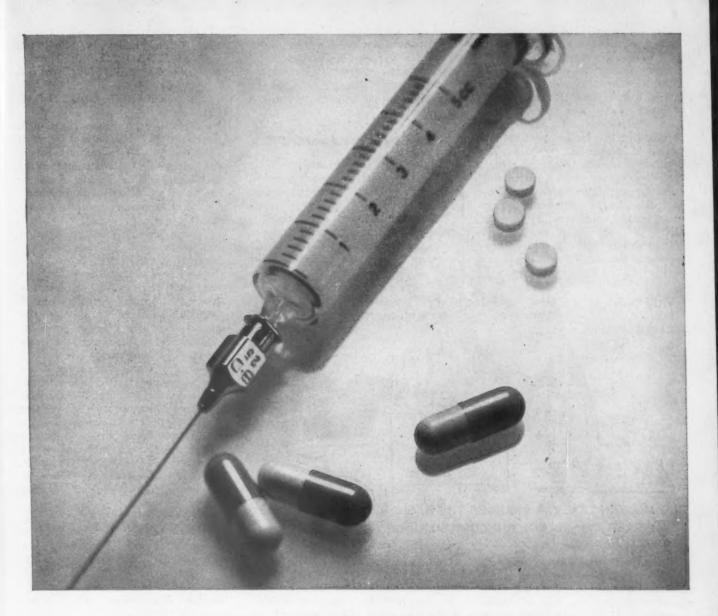


THE INVENTOR OF A SECRET PROCESS HAS PROPERTY RIGHTS
THAT COURTS WILL PROTECT, EVEN IF IT IS UNPATENTED

he has a valid patent. This is very important new law.

This court also held that, with respect to a contract made by a purchaser and the owner of a secret process for manufacturing merchandise, or patent, the purchaser may

Toby was the inventor and sole owner of the Toby Street Marker, on which a patent had been applied for. Although Toby had not at this time been awarded a patent on his invention, it was manufactured under a secret process which, the court



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held, gave him the same legal status as if he had a patent.

Toby signed a written contract with a distributor and purchaser named Vann. Under the terms of this contract, Vann was appointed the sole distributor of the patent throughout the United States for a period of 24 months from date. The contract contained the usual clauses that Vann agreed to diligently prosecute the sale of the patent, and further details were outlined as to payment, shipment of the merchandise,

In addition to these various provisions in the written contract, Vann

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sell goods of any other manufacturer than his vendor, it is void under federal anti-trust statutes since the contract may substantially lessen competition or tend to create a monopoly.

No Damages Awarded

In holding Vann not liable to Toby for breach of the original contract, the higher court stated important law, as follows:

"The written and oral promises show the condition that during the term of the contract Vann would not handle or distribute any other

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orally agreed that he would not handle or distribute any other merchandise similar to Toby's merchandise during the life of their contract, and further that Toby would give Vann the exclusive agency to market and sell the merchandise (street markers).

several months, learned that Vann was manufacturing, marketing and selling competitive merchandise. Also, Vann failed to pay Toby some \$7,639.16 commissions and royalties due under the contract. Toby asked the court to award him actual damages of \$11,-558.16 plus \$7,500 exemplary dam-

Vann defended the suit on the grounds that the oral agreement by which he agreed not to handle or sell similar merchandise rendered the whole contract void and unenforceable. The higher court held as follows: Where the owner of patented merchandise, or of a secret process for manufacture of merchandise, grants the exclusive sales right to another, such grant does not of itself bring the case within antitrust statutes. However, if the contract obligates the purchaser not to street marker than Toby's, and Vann was to have the exclusive sales rights to Toby's street marker. Considering first the question of the exclusive sales rights granted to Vann by Toby, we are of the opinion that Toby had a secret process for the manufacture of Toby's street markers in the molds which he furnished to manufacturers designated by him under the contract, and is protected in his right as against Vann under the rule that one who invents or discovers a secret process of manufacture . . . 'whether a proper subject for a patent or not, has not an exclusive right to it as against the public, or against those who in good faith acquire knowledge of it, yet he has a property in it, which a court will protect against one who, in violation of contract and breach of confidence, undertakes to apply it to his own use or to disclose it to third persons.' Toby's grant of the exclusive sales right to Vann did not, of itself, bring this case within our anti-trust statutes."

For other higher court decisions upholding this law, see Hartman v. Parks, C.C., 145 F. 358-378; Smoley v. N. J. Zinc, D.C. 24 F. Supp. 294299; Allen-Qualley v. Shellmar, D.C. 31 F. (2d) 293-296; Glass v. Kottwitz, 297 S.W. 573; Brown & Root v. Jaques, 98 S.W. (2d) 257; and Boucher v. Wissman, 206 S.W. (2d) 101.

Nevertheless, as above mentioned, the court held the contract between Toby and Vann void and unenforceable because the testimony proved that Vann had orally agreed not to handle or sell any similar merchandise. In this respect, the higher court

"It matters not that the contract was for sales of the street marker throughout the United States. The contract here violates both the Federal and our State Anti-Trust statutes. Contracts for the sale of goods, which assume to obligate the purchaser not to sell the goods of any other manufacturer than his vendor, are void under the federal anti-trust statutes where the contract may substantially lessen competition or tend to create a monopoly; but not otherwise. . . Under our view of the contract, its invalidity under the anti-trust statute bars a recovery by either party as against the other. For the reasons stated . . . judgment is here rendered that Toby take nothing by this

Some Monopolies Are Lawful

Quite apparently, from the above explanations, not all monopolies are void and unlawful. Three important anti-trust laws now are in effect: Sherman (enacted in 1890), Clayton (enacted in 1914), and the more recent Robinson-Patman Act. Not all monopolies are unlawful and denounced by Congress. It is only monopolies and resultant contracts that are in restraint of interstate traffic or commerce that are unlawful, and it is these combinations that Congress has prohibited.

For illustration, in Hopkins v. U. S., 171 U. S. 578, the Supreme Court said:

"Where the subject matter of the agreement does not directly relate to and act upon and embrace interstate commerce, and where the undisputed facts clearly show that the purpose of the agreement was not to regulate, obstruct or restrain that commerce, but that it was entered into with the object of properly and fairly regulating the transactions of the business in which the parties to the agreement were engaged, such agreement will be upheld as not within the anti-trust statutes."

It is well recognized that the Clayton Act makes price discrimi-

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nation unlawful only if it tends we prevent competition. In other words, a seller does not violate this antitrust law unless the testimony proves that the lower "cut" price prevents competitors from "taking business away" from the latter business which the competitors might have secured had the price cutter not cut his prices.

See Moss v. F.T.C., 148 Fed. (2d) 278. Here a seller charged different prices for his product in different localities. In subsequent litigation, the higher court held that the seller would be guilty of violating the Clayton Act if the testimony proved that the lower or cut prices prevented competitors from getting business from the seller, which otherwise the sellers would have gotten.

Refusal to Sell

For leading higher court decisions explaining the law on the rights of a seller to choose buyers, and refuse to sell his merchandise to certain buyers, see U.S. v. Colgate, 1919, 250 U.S. 300, 7 A.L.R. 443; Mennen v. F.T.C., 288 F. 774, 780, 30 A.L.R. 1120; Wholesale Grocers Assn. v. F.T.C., 5 Cir., 277 F. 657; Coca-Cola Bottling Co. v. Coca-Cola Co., D.C. Del., 269 F. 796; Lippincott v. F.T.C., 137 F. (2d) 490, 495; Pittsburgh v. Jarrett, D.C. Gas., 42 F. Supp. 723.

These higher courts held that before enaction of the Sherman Act a seller might legally reject the offer of a buyer to buy his merchandise because the seller did not like the prospective purchaser's business methods, or because he had some personal difference with him, as political or social. That was purely his own affair, with which nobody else had any concern. New higher courts held that neither the Sherman Act, nor any decision of the Supreme Court, nor the Clayton Act, has changed the law which gives a seller the right to refuse to sell his merchandise to purchasers he does not want to sell. This also is important law held by a new decision.

Also, see Brasing, 155 Fed. (2d) 99, where a higher court held that it is the right of a seller engaged in a strictly private business to freely exercise his own independent discretion as to the parties with whom he will deal.

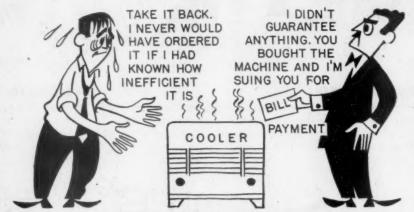
Destroying Competition

Modern higher courts consistently hold that manufacturers and sellers may lawfully destroy competition by buying plants and businesses of competitors. For example, in Willis v. Lumber Co., 248 Fed. (2d) 212, the higher court held that there is no rule of law which makes the motive of the purchaser of a business the test of the validity of the contract. On the contrary, the court said, a purchaser may legally purchase the trade and business of another for the very purpose of preventing competition. This court said:

"The sale and transfer by a person of his property and good will to another cannot be repudiated on the ground that the purchaser acquired the property for the purpose of obtaining a monopoly of the interstate commerce. Moreover, the members did not conspire to establish prices on flooring, nor lessen competition.

For comparison, see Jordan v. F.T.C., 4 F. (2d) 910. Testimony showed that a manufacturer made contracts with many retail dealers, and a clause in each contract bound the dealer and purchaser to maintain the resale price fixed on the labels, and also obligated the dealer not to sell, or permit to be sold on his premises, the merchandise of competitors.

The manufacturer, by refusing to



WITHOUT AN EXPRESS GUARANTEE, SELLER IS LIABLE ON AN IMPLIED WARRANTY THAT GOODS ARE FIT FOR THE PURPOSE

business, and in pursuance of an illegal combination in restraint of trade."

Another important point of law is that any "combine" which does not lessen or tend to lessen competition is legal. See Cement Mfrs. Protective Assn. v. U.S., 268 U.S. 588.

Again, see Maple Flooring Mfrs. Assn. v. U.S., 268 U.S. 563. In this case, many manufacturers of flooring formed an association. They sent out by mail information pertaining to the average production cost of the products, average waste and losses. freight rates, ordinary expenses, amount and kinds of flooring sold and stock on hand, commissions paid, unfilled orders, monthly production, and new orders booked. Also, current prices of flooring were transmitted to the members by the Secretary of the Association. At various times, the members congregated but did not discuss future prices.

In subsequent litigation, the higher court held these acts valid and not in restraint of trade, because the testimony failed to prove that the members had any intentions to injure, obstruct or restrain sell his merchandise to dealers who violated the contract, also violated the anti-trust laws. The higher court held that the manufacturer was engaged in unfair competition, and said:

"Section 3 of the Clayton Act condemns sales or agreements of sales made under terms as to substantially lessen competition or tend to create a monopoly in any line of commerce."

Liability of Seller

A dealer who purchases merchandise for resale asks: "It is my understanding that a seller is strictly accountable to his purchaser on warranties. If this is so, under what circumstances can an original purchaser and retail dealer compel the manufacturer to stand responsible to the final purchaser for defects or other breach of guarantee made by the retail dealer or original purchaser to the last purchaser and user of the merchandise?"

All sellers are liable to purchasers for breach of any valid guarantee. This is so although the goods sold by the seller were purchased from a manufacturer. Also, modern



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higher courts hold that a purchaser may void payment to the seller for merchandise or equipment if the testimony proves that it is unfit for the purpose for which it was purchased that it must be assumed he would not have bought it, had he known of the defects.

For illustration, in Standard v. Godchaux, 11 So. (2d) 96, it was shown that a seller entered into a contract with a purchaser to install a ventilating system. After the system was installed, it proved entirely unsatisfactory to the purchaser and he refused to pay for it. Suit was brought by the seller to recover the contract price. The higher court refused to hold the purchaser obligated to pay, saying:

"The facts show that the cooling system was so defective and imperfect that it may be supposed that the defendant (purchaser) would not have contracted for its installation had he been aware of its deficiencies in performance and the results to be obtained from it."

Of course, it is common law that all sellers are liable on an implied guarantee if (1) testimony shows that the goods were entirely unsatisfactory to the purchaser; (2) the seller gave the purchaser no express guarantee; and (3) the purchaser offered within a reasonable period of time after receiving delivery of the goods to return same to the seller. And some courts hold that circumstances may be such that the purchaser is entitled to relief although he did not offer to return the unsatisfactory goods at once.

For example, in Ames v. Busick, 47 N.E. (2d) 647, the testimony showed that a woman purchased a fur coat for \$225. She wore it for three months and then sued the seller to recover the full purchase price. During the trial, the woman proved that the seller had warranted the coat to be new and free from defects. She proved that the coat was defective in that portions of it became shabby and worn, without excessive wear, in three months time.

The seller argued that the woman buyer was not entitled to recover the purchase price because she wore the coat for a considerable period of time during the winter before she offered to restore it to the seller. The higher court ordered the seller to take back the coat and return the full purchase price, saying that the buyer had a reasonable period of time to wear and test the quality of the coat.

Obviously, the above explained cases relate strictly to guarantees between the sellers and users of merchandise. There was no apparent reason why the seller or retail dealer could in any way hold the manufacturer or original seller responsible, because the user relied upon the retail dealer's warranty, and the latter did not attempt to prove that the manufacturer also was liable.

Nevertheless, circumstances may exist under which the retail dealer and original purchaser may hold the manufacturer accountable and liable for damages paid to the final purchaser by the dealer. A recent higher court decision explains this phase of the law in detail.

In Kayser v. Clark, 59 N.W. (2d) 899, testimony showed that the Central Hardware Company purchased several ladders from the Clark Company and sold one of them to a purchaser named Kayser, who was seriously injured as a result of the ladder's collapse while he was using it. Kayser sued Central Hardware Company for heavy damages. The latter notified the manufacturer of the commencement of the suit and demanded that it take over the defense. This the manufacturer refused to do.

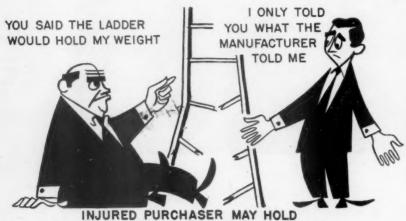
During the trial, Kayser proved that a salesman of the hardware company had expressly guaranteed

During this trial, the manufacturer denied a breach of its warranties to the Central Hardware Company and alleged that if the ladder were defective at the time of its sale to Central, the latter was bound to inspect it for revealing defects, and that its failure to do so was the sole negligence bringing about the injuries sustained by Kayser. Nevertheless, as the hardware company proved that the manufacturer guaranteed that the purchased ladders were safe, strong, and made of sound and seasoned lumber, the higher court held the manufacturer liable to the hardware company for the \$5.000 damages the latter had previously paid to Kayser. The court said:

"Where personal property is purchased for resale, and subsequently resold by the purchaser with warranties identical to those given him by his seller, damages recovered against the purchaser by the subpurchaser for breach of the warranties may in turn be recovered by such purchaser from the original seller."

Joint Liability

For comparison, see the case of Haber v. Moor, 94 N.E. (2d) 611. Here testimony showed that a retailer sold medicine to the owner of animals. The animals died, and the higher court held both the retailer



THE DEALER RESPONSIBLE ON WARRANTY; DEALER IN TURN MAY RECOVER FROM MANUFACTURER

that the ladder was safe, strong, and durable; made of sound, selected, and thoroughly seasoned lumber; of good workmanship and of sufficient strength to sustain Kayser's weight. In view of this testimony, the higher court held the hardware company liable to Kayser for \$5,000 damages. The company paid these damages and then sued the manufacturer to recover this amount.

and the manufacturer liable, because the retailer himself recommended the medicine as being "good for the animals". Hence in this case the retailer and the manufacturer were held jointly liable in damages to the buyer. There are other higher court cases on record which hold the retailer, wholesaler, and manufacturer jointly liable in damages

(Please turn to page 346)

HERES PROOF: You can always count on Continental for every fastener need!

Only Continental Makes Every Type of Tapping Screw!

... to save you time and money

Continental is the only producer making all 14 types of threadforming and thread-cutting screws. True to their tradition "you can always count on Continental," they have built a reputation of repeatedly meeting every fastener need.

Whether you are interested in specials or standards, Continental's vast stock selection and design know-how are at your service . . . backed by 50 years of experience.

Call today direct or through your local distributor. Let Continental help save time and money in your operation.

Manufacturers of **HOLTITE** Fastenings



50th Anniversary

CONTINENTAL SCREW COMPANY

New Bedford, Mass., U. S. A.

New Products Ideas



You can get more information on any new product shown in this section. Just check the number that follows each item and circle the corresponding number on the Inquiry Card, page 17. Drop the card in the mail and we'll do the rest.

Masking Tape Won't Stain Light Surfaces



A stain-resistant marking tape is on the market which will enable white or pastel colored surfaces to come through finishing operations unmarked by the residue and discoloration prevalent with holding and masking tapes. Made with a flexible crepe-paper backing, it adheres equally well to contours and flats. No wetting or preliminary treatment is necessary because the adhesive is pressure sensitive. It is a product of Behr-Manning Corp., Troy, N.Y.

Circle No. 40 on Inquiry Card-Page 17

Leak-Proof Coupling for High Pressure Jobs

Titeflex, Inc., Springfield, Mass., announces a quick-seal, leak-proof coupling specially designed for high-pressure, heavy-flow applications in the steel, oil, chemical and other industries. Its operation is based on

a construction that makes the hose line leak-proof the moment the nipple is seated in the coupling body. It seals it tighter, the higher the pressure builds up. In addition, the coupling has a full-swiveling feature that prevents hose kinking and thereby assures long hose life.

Circle No. 41 on Inquiry Card—Page 17

Plating Barrel Conveyor Produces up to 6000 lb/hr



The conveyor is of the return type using a standard horizontal barrel plating cylinder. The system will produce 3000 to 6000 lb of plated work an hour, depending on the surface area per lb of work plated and thickness of deposit. The machine is very flexible because of timer controlled speed and power operated skip transfer. Cylinders revolve in a trough of anodes in the plating tank. None of the machine's operating mechanism is over the tanks, except the V-belt which will not rust. The Udylite Corp., 1651 E. Grand Blvd., Detroit 11, Mich. makes it.

Circle No. 42 on Inquiry Card-Page 17

Plastic Pipe Handles Most Corrosives



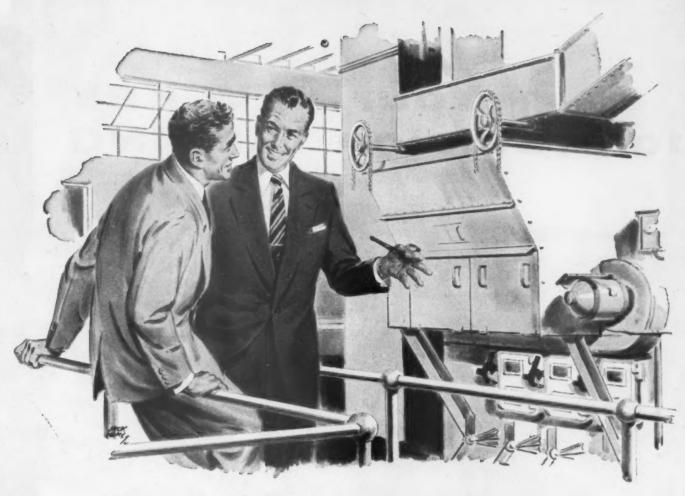
The American Hard Rubber Co., 93 Worth St., New York 13, N.Y., has on the market a new corrosion-resistant rigid plastic pipe with exceptional impact resistance and toughness. In addition to its high impact resistance, it is lightweight, odorless, tasteless and non-contaminating. It has excellent resistance to most inorganic acids and alkalies. It has limited resistance to organic solvents. It is not recommended for temperatures above 170 F nor below —20 F. The pipe is supplied in sizes from ½" to 2".

Circle No. 43 on Inquiry Card-Page 17

Indicator Is Protected Against Liquids, Dust

Federal Products Corp., 1144 Eddy St., Providence 1, R.I., announces a wet-proof indicator in which the movement is fully protected against splashing coolants,

(Please turn to page 132)



Here's where we can't go wrong," I told John

John is my partner in a small manufacturing enterprise we started six years ago. Recently we decided to build a new plant that would give us added space and the most modern facilities. There were a lot of hard decisions to make because we just haven't enough money to afford mistakes, even little ones.

Then came the question of what fuel to use. The answer to this one was so easy, it was almost a relief. Coal-for these reasons:

The cost of quality coal to meet our most exacting requirements should be substantially less than that of any other fuel.

With modern stoker and coal and ash handling equipment, our steam costs should be reduced to a minimum.

Not only can we store as much reserve coal as we require in our own yard safely and inexpensively, but there's no worry about

curtailment in delivery and diminishing supply, as could be the case with other fuels.

We figured, too, that if companies many times our size are burning coal - and for the same reasons - we can't go wrong.

Bring your fuel problems to C &O

As the world's largest carrier of bituminous coal, the C&O is intimately tamiliar with every phase of coal who will gladly help you to locate the coal best suited to your needs; to help get it to you promptly.

Write to: Coal Traffic Department Chesapeake and Ohio Railway 2117 Terminal Tower Cleveland I, Ohio



Chesapeake and Ohio Railway

World's Largest Carrier of Bituminous Coal

Your NEW KEY to Precision TAPPING





Now Morse takes another giantstep ahead . . . this time with "Vectormatic" Tap-Thread Grinding . . . an entirely new process that includes an entirely new method of close-tolerance gaging.

The tap is sized by exclusive Vectormatic "Magic-Mike" control. Size control mechanism and the adjusting segment of the circuit are completely locked-in, to insure uniformity.

In the whole operation, the work is never touched by the gaging mechanism, which is controlled by an invisible wall of electrons activating a series of relays. Control mechanism is unaffected by voltage fluctuations and vibrations.

That's why Morse Vectormatic Thread Grinding is the most precise method in use today . . . and why Morse Taps are now, even more than ever before, your best buy. Call your Morse-Franchised Distributor now . . . your only source for Vectormatic Ground Taps.

MORSE TWIST DRILL & MACHINE COMPANY (Division of VAN NORMAN COMPANY)

NEW BEDFORD, MASS. - Warehouses in New York, Detroit, Chicago, Houston, San Francisco

MORSE ... buy them by phone fr

... buy them by phone from your Morse-Franchised Distributor and save ordering time

For More Information Circle No. 264 on Inquiry Card-Page 17

New G-E TRISS CLAD Motors

NOW AVAILABLE THROUGH 10 HP!

Prompt Service, Quantity Shipment on these new motors...

TRI/CLAD '55' MOTORS-3-PHASE, 60 CYCLES, NEMA DESIGN B

HP	3600 RPM	1800 RPM	1200 RPM	900 RPM	
1/2				K182 220/440v*	
3/4			K182 220/440v*, 550v	K184 220/440v*	
1		K182 208v, 220/440v*, 550v			
1 1/2	K182 220/440v*, 550v	K184 208v, 220/440v*, 550v	K184 220/440v*, 550v	K213 220/440v*	
2	K184 220/440v*, 550v	K184 208v, 220/440v*, 550v	K213 220/440v*, 550v	K215 220/440v*	
3	K184 220/440v*, 550v	K213 208v, 220/440v*, 550v	K215 220/440v*	K254U 208v*, 220/440v* 550v*	
5	K213 220/440v*	K215 208v, 220/440v*	K254U 208v*, 220/440v*, 550v*	K256U 208v*, 220/440v* 550v*	
71/2	K215 220/440v*	K254U 208v*, 220/440v*, 550v*	K256U 208v*, 220/440v*, 550v*		
10	K254U 208v*, 220/440v*, 550v*	K256U 208v*, 220/440v*, 550v*			
15	K256U 208v*, 220/440v*, 550v*				

...and fast delivery on Sample Motors through 20 hp!

71/2				284U 208v*, 220/440v*, 550v*
10			284U 208v*, 220/440v*, 550v*	286U 208v*, 220/440v*, 550v*
15		284U 208v*, 220/440v*, 550v*		
20	284U 208v#, 220/440v#, 550v#	286U 208v*, 220/440v*, 550v*		
25	286U 208v, 220/440v, 550v			11

* Indicates totally-enclosed motors also available.

Dripproof only, TEFC available in 286U frame.

All motors obtainable with NEMA "C" face and "D" flange end shields, foot mounted or round frame. Splashproof motors in all ratings.

Motors can also be obtained for 50 cycles. 254 and 256 frames available in high starting torque or high slip NEMA designs C or D, except 3600-rpm motors.

There is prompt service on specials in the above sizes, too! Also new Tri/Clad '55' single-phase, wound-rotor, and hermetic motors are available.

If you wish the G-E Tri/Clad motor in the original design, they are still available

. . in ratings listed above and in ratings to 2000 hp.

To get even more recent availability information on standard and special motors, contact your nearest G-E Apparatus Sales Office or G-E motor supplier. General Electric Co., Schenectady 5, N. Y.



For more Information Circle No. 265 on Inquiry Card-Page 17

(Continued from page 128) oil, oil fog, or excessive dust. The problem was attacked in an improved design of the lower bushing, through which extraneous matter is apt to enter the ordinary indicator case. In this indicator there is a specially designed rubber boot which fits tightly into special grooves in the stem and contact point. Also, a rubber sealing ring is placed between the bezel and the dial to seal it at this point.

Circle No. 44 on Inquiry Card-Page 17

Special Truck Simplifies Overhead Maintenance Jobs



A lift truck with a 19' 6" platform height permits one man to reach points as high as 25' over the floor and up to 16' in front of the unit. The operator rides this battery-powered platform lift truck to the job location, and uses push buttons to raise the platform quickly to the overhead maintenance job. Up to 500 lb loads are safely carried on platform, permitting replacement parts, cleaning materials, etc., to be carried aloft with the operator. The manufacturer is Mitchell Maintenance Co., Inc., P.O. Box 1225, Muncie, Ind.

Circle No. 45 on Inquiry Card-Page 17

Large Self-Leveling Machinery Mounts

Barry Corp., Watertown, Mass., is manufacturing self-leveling machinery mounts that carry up to 10,000 lb per mount. It allows heavy machinery to be installed and leveled in a matter of minutes without bolting or shims. With the use of these mounts, there is less wear and tear on adjacent machinery and on the plant structure itself because they isolate the impacts generated during operation of the machines. Noises are isolated by these mounts and machines can be placed next to offices or laboratories without disturbing personnel.

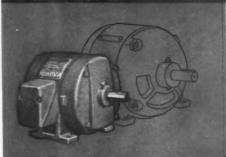
Circle No. 46 on Inquiry Card-Page 17

For More Information Circle No. 266 on Inquiry Card—Page 17→ PURCHASING 8 reasons why you should

MODERNIZE EQUIPMENT WITH TRI 弱 CLAD MOTORS

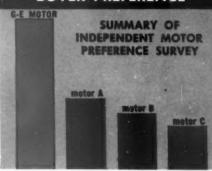
Plan now to modernize your equipment with the all-new General Electric Tri/Clad '55' motor, available now in many ratings; entire line of 1 to 30 hp a-c motors available soon. Contact your G-E Representative. General Electric Company, Section 648-6, Schenectady 5, N. Y.

MORE POWER PER POUND



Lighter and smaller Tri/Clad '55' motors in new NEMA frame sizes and ratings save you space and weight, reduce handling costs.

BUYER PREFERENCE



You take advantage of a 2 to 1 buyer preference for the electric motors on your equipment when you buy or specify a G-E motor.



Quieter operation, proved by sound-room tests, is typical of the many performance improvements in the new G-E Tri/Clad '55'.

LONGER LIFE



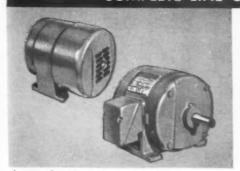
A silicone Dri-film* coating makes insulation shed water-lengthens motor life. Polyester-film insulation is 8 times stronger.

EASIER INSTALLATION

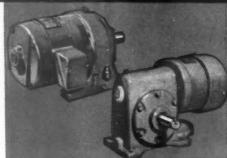


Perma-numbered leads are always instantly read even when wires are taped or clipped. Conduit box has plenty of knuckle room.

COMPLETE LINE OF NEW MOTORS



A complete line of new motors assures the right electrical drive for your machine. Write for Bulletin GEA-6013 on dripproof motors,



speed jobs, G.E. offers a complete line of

NEAR-BY SERVICE

CLASSIFIED Electric Repair Service -(Continued) GENERAL ELECTRIC SMALL MOTOR SERVICE STATION SMALL MUTUR Services for in and Complete facilities for in and cut-of-warranty repair or exchange of A-C and D-C motors change of A-C and D-C MP. Auand generators to 15 MP. Auand generators to 15 MP. Auand generators as the services of th

GEA-6012, on enclosed motors. For low G-E service is as close as your telephone. Authorized motor service stations provide gear-motors. Write for Bulletin GEA-6027. repair-facilities in all major trading areas.

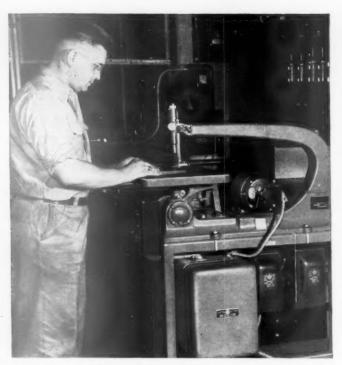
*Reg. trade-mark of General Electric Co.

rogress is our most important product

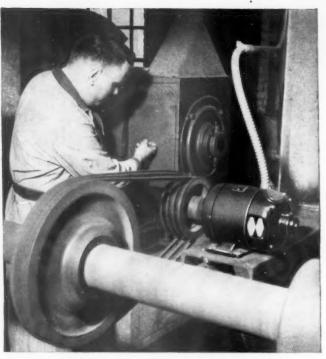
GENERA



ELECTRIC

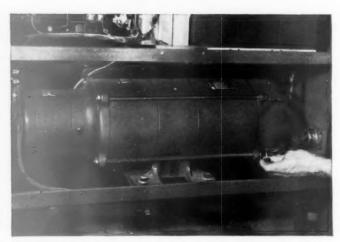


INCREASE EQUIPMENT FLEXIBILITY. G-E d-c fhp motors are excellent for machines that require variable speed to meet changing requirements. Here, blade speed is adjusted depending on hardness of metal being cut.



2 IMPROVE PRODUCT QUALITY. G-E tachometer generators accurately measure rotational and linear speed on equipment such as processing machines and conveyors where product quality depends on precise speed control.

Save 3 ways with G-E d-c equipment



3 SIMPLIFY PROCESS CONTROL. G-E amplidynes are simple and compact, yet provide fast, accurate control of current, voltage, speed, tension, or position. They're used on a variety of process equipment plus machine tools.

General Electric's small d-c equipment helps step up production, improve product quality, make machinery more flexible

Today's production machines demand flexible control of speed, torque, acceleration, and deceleration... flexibility that only d-c equipment can provide. That's why one out of ten industrial machines is now d-c powered.

GENERAL ELECTRIC APPLICATION ENGINEERS stand ready to help you take advantage of the benefits of d-c equipment and to assist you in the selection of d-c motors and equipment best suited for your needs. To arrange for this help...and for additional information on d-c equipment as shown...contact your local G-E Apparatus Sales Office or Distributor today. Or write General Electric Company, Section 704-13, Schenectady, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

"Nothing can go wrong with Roto-Lock performance"

Says Elgin Metal Casket Company

Simmons Roto-Lock Fasteners are used by Elgin Metal Casket Co., of Elgin, Illinois, to give its Permaseal Caskets a perfect hermetic seal against air and water. Drawn down with a pressure of up to 1500 lbs., Roto-Lock guarantees an absolutely tight seal and strength far beyond requirements.

President E. B. Stewart of Elgin says: "Roto-Lock worked out particularly well because of the simplicity of its construction, and the fact that it was a lock already in a housing which could readily be sealed. Functionally the lock is very good since it pulls the lid down with ease and is a quick-operating mechanism. In other words, the locking and sealing operation can be accomplished quickly and easily in a matter of seconds. Since the whole locking and sealing mechanism contains only one moving part, there is nothing that can go wrong with the performance of the lock. Of course, this is important since mal-function at a funeral service would be a serious matter."

and there's a Roto-Lock application to improve your product

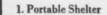
Roto-Lock, which makes butt or right-angle joints quickly, is finding wide application in portable shelters, air freight and cold storage shipping containers, walk-in coolers, demountable furniture and scaffolding. It fastens in any misaligned or semi-open position and recesses completely into panels. Wherever demountability is important, there's a Roto-Lock application.

Write today for our 36-page catalog. It's filled with applications of Roto-Lock and Simmons' four other special fasteners engineered to improve products and reduce assembly costs.

SIMMONS FASTENER CORPORATION 1743 N. Broadway, Albany 1, New York



Some applications of Roto-Lock:





3. Demountable Refrigerator Unit

4. Demountable Desk









For More Information Circle No. 268 on Inquiry Card-Page 17

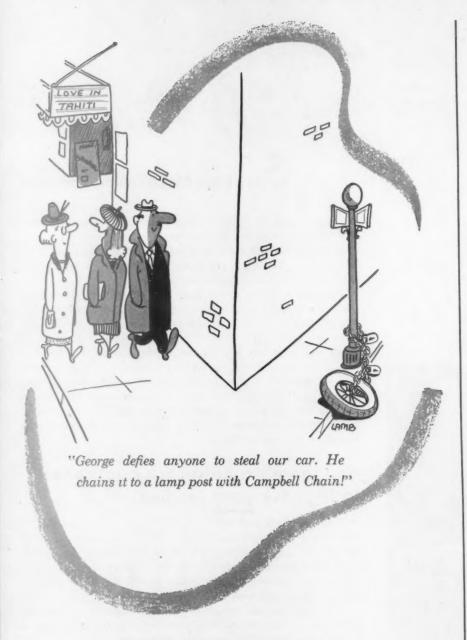
Simmons

FASTENERS WITH

QUICK-LOCK · SPRING-LOCK · ROTO-LOCK · LINK-LOCK · DUAL-LOCK

Roto-Lock operation is simple: Serrated, tapered cam engages latch - draws panels

tightly together when turned by crank or other hand tool.



Campbell makes safe, dependable chain to meet every requirement. No matter where you use chain . . . for maintenance . . . on the production line . . . or as original equipment on your product, there's a size and grade of CAMPBELL CHAIN exactly suited to your needs.

Be sure you specify CAMPBELL, the chain that's inspected link-by-link to assure long life. Get complete information from your local distributor or mill supply house. If your chain problem is unusual, write direct.

CAMPBELL CHAIN Company

CAMPBELL

Main Office, York, Pa. • West Burlington, Iowa Portland, Oregon · Sacramento, California

Makers of Famous CAMPBELL Lug-Reinforced TIRE CHAINS

CHAIN

For More Information Circle No. 269 on Inquiry Card-Page 17

Washer-Type Locknut **Electrically Grounds**



A washer type locknut is being offered by the Palnut Co., 61 Cordier St., Irvington 11, N.J., with toothlike elements in the flanged base. This feature enables it to dig through non-conducting materials to achieve an electrically grounded assembly. Originally developed for grounding automobile lamp assemblies through non-conductive coatings present on metal parts, this type locknut is now available for application to other products. It is available in #10-24 and 1/4"-20 sizes. Circle No. 47 on Inquiry Card-Page 17

Lengthening Fluorescent Lamp Life



A glow switch starter has been designed to give average longer life 40-watt fluorescent to regular lamps. The switch prevents the surges which are sufficient to cause instant starting of lead-circuit lamps, thus shortening lamp life. It also assures proper pre-heating for the lamps and thus prolongs lamp life. It is a product of General Electric, Construction Materials Div., Bridgeport 2, Conn.

Circle No. 48 on Inquiry Card-Page 17

Want more Facts on any of the products shown in this issue? Get them quickly and easily by using the INQUIRY - CARD PAGE 17

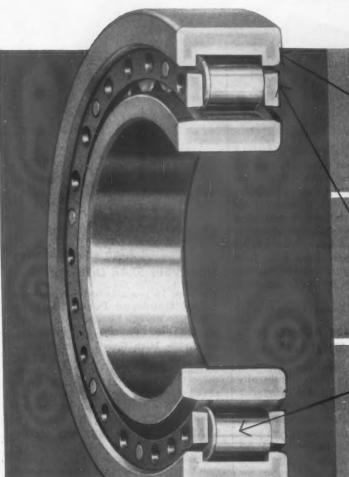
Here's why BOWER straight roller bearings can carry maximum loads—with less maintenance!

The important design features of Bower straight roller bearings shown on this page are just a few of the reasons why these bearings will operate efficiently and economically in your product. Consider these facts, too. Bower straight roller bearings incorporate highest quality materials and workmanship. They have proved themselves capable of standing up day in and day out under maximum loads—with little or no maintenance.

In fact, this is the reason why Bower straight roller bearings are used extensively by leading manufacturers in such fields as automotive, earthmoving, farm equipment and machine tool.

Let a Bower engineer give you full details of the complete Bower line. Call him in while your product is still in the blueprint stage.

BOWER ROLLER BEARING COMPANY . DETROIT 14, MICHIGAN



TWO-LIP RACE INCREASES RIGIDITY. These two shoulders, made parallel, are integral with the outer race. This provides a more rigid, durable construction. Rollers are kept in proper alignment at all times.

COMPOSITE STEEL CAGE DOES NOT CONTACT ROLL-ERS DURING NORMAL OPERATION, thereby allowing free movement of the rollers between the races. Projections on the inner faces of the rings engage indentations on the roller ends preventing the rollers from dropping out of position when the separable race is removed.

eprecision-built rollers and races are made to support maximum radial LOADS. Only the highest grade steel-alloy is used, and rollers and races are precision ground to give quieter, smoother operation. Running clearance is built in at the time of manufacture.

A COMPLETE LINE OF TAPERED, STRAIGHT AND JOURNAL ROLLER BEARINGS FOR EVERY FIELD OF TRANSPORTATION AND INDUSTRY

BOWER





FORWARD! LUBRIPLATE LUBRICANTS

The introduction of LUBRIPLATE Lubricants established a new high standard for industrial lubrication. Now, a recently patented improvement in the production of LUBRIPLATE results in even greater lubrication efficiency. Under today's operating costs, reduction of down time, less parts wear and replacements, as well as lower power consumption, far outweigh any differential in the initial cost of LUBRIPLATE Lubricants.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Write for your free copy of the new and enlarged LUBRIPLATE DATA BOOK—a most valuable treatise on modern lubrication!

Fiske Brothers Refining Co. Newark 5, N. J. • Toledo 5, Ohio



For More Information Circle No. 271 on Inquiry Card—Page 17

Air Balance Eliminates Counterweights

By means of an air balance system, Buhr Machine Tool Co., Ann Arbor, Mich., states that expensive counterweight assemblies on vertical machines can be dispensed with. This system operates at 50 lb. line pressure, and the storage tank cuts air consumption to a minimum. The machine is fully equipped with a safety device to guard against air failure or creepage during idleness. One model bores, drills and chamfers two automotive steel flanges at a time, at a rate of 329 pieces per hour. The holding fixture, mounted on an automatic index table, is arranged with hydraulic clamping. Circle No. 49 on Inquiry Card-Page 17

Foot-Warming Mat Raises Morale



A lightweight, electrically-heated, foot warming mat makes it possible for employees to work all day on cold concrete floors or in drafty offices without the discomfort of cold feet. It is claimed to reduce a great percentage of absenteeism due to colds. It uses about 100 watts of power and weighs about 5 lb. It is manufactured by Interstate Rubber Products Corp., 108 Avila St., Los Angeles 12. Cal.

Circle No. 50 on Inquiry Card-Page 17

Labeling Tape Adheres to Oily & Dry Metal Surfaces

A pressure sensitive tape is claimed to adhere perfectly to oily as well as dry metal surfaces. Known as Oil-Stik, it incorporates a special adhesive that combines with oil to produce a firm bond, yet permits the tape to be stripped off without leaving a mark. The bond becomes progressively stronger for the first 50 or 60 minutes, due to the continuing action of the oil on the adhesive. To permit identification, the new tape has an excellent writing surface for pencil, ink or cravon. It is available in a variety of widths from 1/2" to 22" in 60 yard rolls from the makers: Labelon Tape, Inc., 450 Atlantic Ave., Rochester 9, N. Y.

Circle No. 51 on Inquiry Card-Page 17



high speed blades from your STAR Distributor?

For over 75 years, industry has known STAR Hand and Power Hacksaw Blades as quality blades.

Here, as an example, is the STAR Unbreakable High Speed Steel Blade safe, fast-cutting, long-lived. The STAR combination of a flexible steel back, special-process weld and high speed steel cutting edge adds up to an efficient, shatterproof, proved-quality

STAR SERVICE COSTS NO MORE

Order any of the complete line of STAR Blades from your Industrial Distributor—your best source of supply for hundreds of the items you need to operate efficiently, economically, and without production interruptions.

Sold Only Through Recognized Distributors

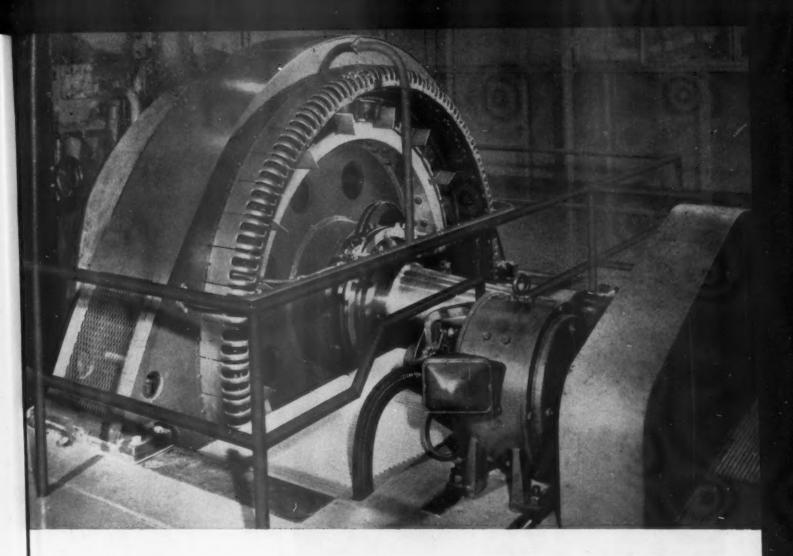


CLEMSON BROS., Inc.

Makers of Hand and Power Hack Saw Blades, Frames, Metal Cutting Band Saws and Clemson Hand and Power Lawn Machines.

For More Information Circle No. 272 on Inquiry Card—Page 17

For more Information Circle No. 273 on Inquiry Card—Page 17→ PURCHASING



Elliott gets spider rim forgings <u>FAST</u> from STANDARD STEEL WORKS

Fast service on key forgings is mighty important to the Elliott Company. That's one of the big reasons why they have been depending on Standard Steel for years to supply spider rim forgings for their synchronous generators.

The urgent need for more and more electric power in this country makes it imperative for Elliott to keep production moving. Output would be stymied completely if they had to wait at all for delivery of their spider rim forgings which are the very heart of the rotor assembly. Fortunately they have found a truly

dependable source . . . the Standard Steel plant in Burnham, Pa.

Elliott's experience is typical, because Standard Steel has unequalled facilities and experience to produce highest quality steel forgings . . . quickly and consistently. Proof of dependable performance is the continuing growth of Standard Steel for over 150 years.

Maintain your production schedules . . . improve product quality . . . by standardizing on Standard Steel as your source for forgings and castings.

For more information about SSW's ability to produce forgings and castings of unusual sizes and shapes (such as weldless rings up to 144¹¹ O.D.) please write Department 8836:



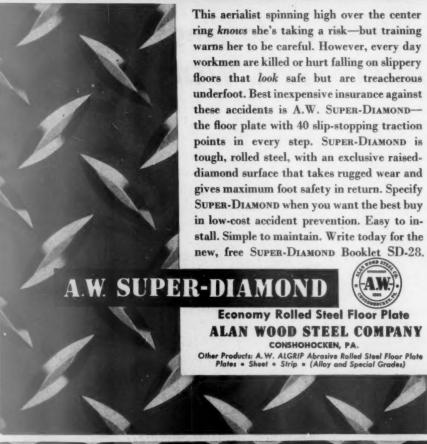
Standard Steel Works Division
Burnham (Mifflin County), Pa.

BALDWIN-LIMA-HAMILTON

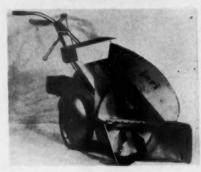
General Offices: Philadelphia 42, Pa. • Offices in Principal Cities

Safer than Slippery Flooring





Snow Thrower Does Work of 10 Hand Shovels



A heavy-duty snow thrower propels itself at 60 yards a minute, while clearing a swath 20 inches wide through heavy, hard-packed or even slushy snow. The rotary type machine is said to perform the work of 10 men with hand shovels. This makes it ideal for work on walks, platforms, driveways, parking lots and other areas that have to be cleared in a hurry. Powered by a 21/2 hp gasoline engine, it operates on same principle as highway rotary plows. Additional attachments give year-round versatility as a sickle bar mower, pressure sprayer, etc. Jari Products, Inc., Minneapolis 8, Minn., is the manufacturer.

Circle No. 52 on Inquiry Card-Page 17

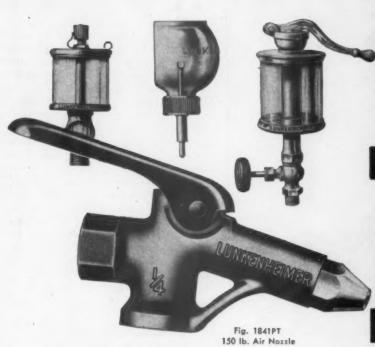
Clamp Rapidly Upends Drums



The Yale & Towne Mfg. Co., Philadelphia 15, Pa., has designed a clamp to rotate drums or other containers for pouring, dumping or stacking operations. The attachment picks up drums from either horizontal or vertical position and provides full 180° forward and reverse rotation for rapid upending of drums. The rotating arms are hydraulically actuated and controlled by a lever located convenient to operator's position. The attachment handles a 55 gal drum with maximum weight of 1000 lb.

Circle No. 53 on Inquiry Card-Page 17

take advantage of ER Juality AIR DEVICES

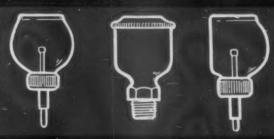


Make your expensive machinery last longer with Lunkenheimer Lubricating Devices. Cut the high cost of compressed air leaks with Lunkenheimer Air Nozzles and Cocks. Keep accurate check on your storage tanks and reservoirs with Lunkenheimer Liquid Gauges. All these carefully designed, carefully cast, carefully machined bronze accessories assure longer wear with less repair. The complete Lunkenheimer Line includes oil cups, grease cups, lubricators, cocks, nozzles, liquid gauges, and whistles. See your Lunkenheimer Distributor, or write for literature to The Lunkenheimer Co., Box 360K, Cincinnati 14, Ohio.

BRONZE • IRON • STEEL







OIL AND GREASE CUPS

Yes, Lunkenheimer produces the highest quality Engineering Devices, as well as the world's finest valves. And today — with the high cost of maintenance growing still higher—you NEED the extra margin of quality in design and workmanship that has made Lunkenheimer products world-famous.

LUNKENHEIMER

The Cost of a Lunkenheimer Valve Gets Smaller and Smaller and Smaller with Every Passing Year of Dependable Service.

reat NAME IN VALVES ONE

For More Information Circle No. 275 on Inquiry Card-Page 17

it

New Frigidaire Water Cooler

Wastes No Money While It Waits!



Flash-O-Matic Action Cools as Water Flows

Wastes no water—wastes no electricity. Chills instantly as water is used. Just a touch of the new full-width pedal and this new Frigidaire Cooler immediately gives you a uniform stream of water. There's no surging, spurting, or dying out . . . pressure is automatically regulated. New choice of stainless steel or porcelain top, too.

Other models include bottletype coolers and a special explosion-proof model for industries where explosive fumes or mixtures are present. All powered by quiet, economical Meter-Miser Compressor warranted for 5 years.

Call your Frigidaire Dealer or write: Frigidaire, Dayton 1, O. In Canada, Toronto 13, Ont.



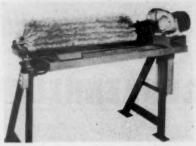
Frigidaire Water Coolers



BUILT AND BACKED BY GENERAL MOTORS

For More Information Circle No. 276 on Inquiry Card-Page 17

Scrubbing Machine Removes Sludge from Metal Parts



A new machine is on the market to remove sludge from complex metal parts after the wet sanding operation in mass production metal forming shops. The machine operates without an attendant. When the automatic scrubber is installed, the frame remains stationary, straddling the conveyor belt that carries the metal sections underneath a rotating cylinder brush. Complete cleaning of the sludge is assured because: (1) the cylinder brush is counterweighted, causing the brush to rise and fall with the contours of the parts as they pass under-neath; (2) an extra long trim on the brush, rotating at 300 rpm, permits access to difficult places. It is a product of the Fuller Brush Co., Machine Div., Hartford 2, Conn.

Circle No. 54 on Inquiry Card-Page 17

Eliminate Welding and Clinching Operations



Made of high-grade steel and preassembled into a spring steel retaining, a T-shaped nut, manufactured by Tinnerman Products, Inc., Cleveland, Ohio, is easily slipped into a panel hole and anchor locked in position. Once installed, it is impossible to rotate the nut or drive it out of its spring steel enclosure. To assemble the new fastener, it is only necessary to place the nut into a panel hole by hand and press with a simple hand tool to locked, screw receiving position. Welding, clinching or staking operations are unnecessary.

Circle No. 55 on Inquiry Card-Page 17

For More Information Circle No. 277 on Inquiry Card—Page 17→ Purchasing Aut your welding

A.O.Smith



. . . .

...and get all the

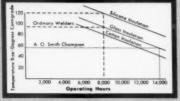
A. C. CHAMPION

heavy-duty welder

Designed and long proved the most dependable power source for continuous operation on the most demanding welding assignments at full rated output.

The CHAMPION has enough copper, plus downdraft ventilation, to assure no more than a 55° C. temperature rise when operating at full rated output. This means almost twice the operating life of any comparable heavy-duty welder!

75 open circuit volts for high-speed welding with a faster and smoother arc! You can "drag the arc" on rapid work and weld low-hydrogen electrodes without "pop-outs." Allweather case makes it as useful outside as in the shop. Available in 300-, 400- and 500-amp models.





The A.C. UTILITY for farms, garages, machine shops with dual welding range: 25-90 amps., 35-180 amps

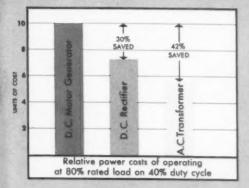
extra benefits

which A. O. Smith design and engineering provide!

Here is a complete line of N.E.M.A.-rated welding power sources that operate without a single, heavy, rotating part! No motor (other than ventilating fan) and no generator... nothing to wear, no commutators to corrode or turn down, no bearings or brushes to replace! Yet they provide a better welding current for all types of work, and operate with unmatched efficiency!

SAVE POWER

Power costs of operating 400-amp, welders are charted below, providing an opportunity to compare motor-generator, rectifier, and AC transformer demands on 40% duty cycle.



The savings in power effected by transformer type machines over motor generators result from the improved efficiency under load of the A. C. transformer (85% to 88%) and the D. C. Rectifier (69% to 72%) over the D. C. Motor Generator (45% to 50%), plus the ability of transformer and rectifier to deliver full welding current instantly, when demanded, without requiring large idletime power to keep rotating parts in motion. The savings are real. In fact, many manufacturers have found that a new transformer will practically pay for itself in a year! Ask your A. O. Smith distributor or representative to show you how, at your next opportunity.

SAVE OTHER COSTS

You save more then power costs when M.G. sets are replaced by A. O. Smith welding machines. Rectifier and transformer welding current inherently has less are blow, and that means higher quality welds, faster welding speeds and less spatter. It also means greater overall operator efficiency, which assures better weldments, less weld repair and gives the operator greater pride in his work. The result: more money saved and production improved!

Secause there are no moving parts, A. O. Smith welders require practically no maintenance. Quiet in operation, they are built to stand up under gruelling production schedules.



D. C. RECTIFIER

heavy-duty welder

Modern successor to the cumbersome, troublesome, lumbering motor-generator set! This welding power source provides smoother are performance, more dependable amperage at all times, instant striking arcs, and uses power only when welding! It's the only rectifier-type welder designed with high-velocity down-draft ventilation, which draws cool air in over the rectifier stacks before blasting it through the machine. Even when short-circuited at full rated amperage setting, the rectifier stacks remain below critical temperature! Stepless amperage control, effortless and accurate over the full range, assures exactly the desired setting for any job. The three-phase transformer coils are precision wound, of heavy copper, for long service life. Available in 200-, 300- and 400-amp. models.



A. C. CHALLENGER elllose welder 200-, 300- and omp. models



The A. C. AUTO-MAN for automatic or manual use 650-amp. model, up to 4-unitmultiples available

There ere A. O. Smith welding power sources for every welding need, built to the highest standards in the industry and of advanced design that makes them more desirable than any other make. Job proved in the shops of the world's largest user of welding as a production tool!

It will pay you to replace M.G. sets with A. O. Smith welders. May we suggest that you write us or contact your local A. O. Smith distributor for full particulars.

A.O. Smith

WELDING PRODUCTS DIVISION, Milwaukee 1, Wisconsin

INTERNATIONAL DIVISION: MILWAUKEE 1, WISCONSIN

Highest Quality Welding Electrodes

Mild Steel	AWS Closs	E4010	E4011	E6012	E6012	E6013	E6013	E6020
Mila Steel	A. O. Smith	\$W10	SW14	\$W11	SW17	SW15	SW16	SW35

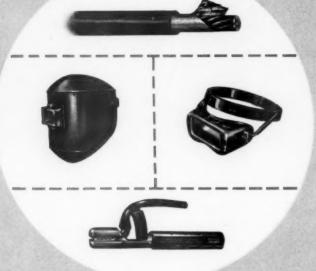
High Tangila	AWS Class	E7010	E7010	E7020	E8013	E9010	E9013	E10013	E10020
High Tensile	A. O. Smith	SW75	SW80	SW74	SW86	SW95	SW87	SW88	SW101

Low Hydrogen	AWS Closs	E6016	E6016	E7016	E0014	E9014	E9016	E10016	E12015	E12016
Lun nyunugen	A. O. Smith	SW64	SW65	SW84	SW81	SW90	SW89	SW100	5W120	SW103

Ctainlass .	AISI Closs	502	505	410	430	308	308	309	309	310	310	310	310	310	316	317	318	347	347
Stainless	A. O. Smith	SW151	SW152	SW153	SW154	SW162	SW362	SW166	SW167	SW159	SW359	SW169	SW168	SW348	SW160	SW161	SW158	SW157	SW357

Complete line of welding accessories

All the essentials to put welding to work are available through A. O. Smith. Quality welding cable, connectors, splicers, ground clamps, tongs, and holders; helmets, shields, gloves, and protective clothing; electrode storage ovens, machines and electrodes ... everything required for welding can be had from one responsible source. Take advantage of this for all your welding needs.





WELDING PRODUCTS DIVISION

Milwaukee 1, Wisconsin
INTERNATIONAL DIVISION: MILWAUKEE 1, WISCONSIN

Made by welders ... for welders



STAPLING SAVES 66%, STOPS SAG! You're looking at a big-selling feature of a well-known storm-and-screen door. It's the strong, continuous hinge secured by staples to aluminum frames. Until recently, self-tapping screws held three 3-inch hinges. In time, screws worked loose. Doors sagged.

A Bostitch Economy Man saw a way to improve this method—using metal-piercing, rust-proofed staples and longer, stronger hinges. Now, Bostitch Metal Stitching saves manufacturer two-thirds in fastening costs, offsets extra cost of better hinge. The improved doors work better, last longer.

How much can you save by swinging over to Bostitch stapling?

Your Bostitch Economy Man can tell youobjectively and honestly. He's one of 350 trained fastening specialists working out of 123 cities in the U.S. and Canada. There are over 800 kinds of Bostitch staplers in his cost-cutting repertoire. Look up "Bostitch" in your telephone directory or check the coupon at the right.

Fasten it better and faster with

BOSTITCH, INC., 731 Mechanic St	., Westerly, R. I.	
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I'd like to know exactly how stapling can cut costs in our fastening operations. I'm particularly interested in the following applications (please check):

I O LLD I HODGE I ION I NOI ENIM	II-SPEED	PRODUCTION	FASTENING
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- stapling vs. riveting stapling vs. spot welding stapling vs. screws or bolts
- stapling vs. glue or cement stapling vs. tape stapling vs. tacks or nails stapling vs. solder
- stapling vs. wire or string

PACKAGING AND CARDING

cloth, paper or plastic)

mounting products on display cards

fastening items to individual cards

SHIPPING ROOM ECONOMIES

- preparing cartons for filling sealing filled cartons
- ☐ lining or padding crates ☐ applying shipping bills or tags
- BUILDING APPLICATIONS applying asphalt roofing
- □ laying underfelt
- installing ceiling tile applying insulation
- ☐ installing low-voltage wiring ☐ applying shake shingle siding

OFFICE EFFICIENCIES

- ☐ filing ☐ routing
- posting
- binding folders and reports preparing advertising dummies

Position.

Company. Address.

Zone. State

For More Information Circle No. 278 on Inquiry Card-Page 17



Everyone recognizes this as a sign of Thanksgiving . . .

And smart gear users know this (CINI) is the sign of the best in custom made gears.

May We Send You Our Brochure?



"Gears...Good Gears Only"

THE CINCINNATI GEAR CO. . CINCINNATI 27, OHIO

For More Information Circle No. 279 on Inquiry Card-Page 17



EXPERIENCE vs. EXPERIMENT

WHEN YOU SELECT S.I.A. wipers, you do away with costly experimentation and "trial and error" methods. That's because every Institute member is an experienced specialist who will analyze your problems and recommend the wipers best suited to your individual needs.

But that's not the only saving. Because S.I.A. wipers come in an almost unlimited variety of textile fabrics, you can choose the particular grade that's most efficient for the given purpose. Furthermore, although they adhere rigidly to minimum requirements of dimensions, weight, and absorbency, there is a flexibility that permits their adaptation to the individual job. And, of course, all S.I.A. wipers are sterile as well as clean.

Get in touch with your nearest Institute member today and find out how he can help you CUT YOUR WIPING COSTS!

DEMAND THIS LABEL!

It's your assurance of clean, sterile, absorbent wipers packed to rigid specifications.



The Sanitary Institute of America has a membership of over one hundred leading industrial wiping cloth processors in twenty-seven of the United States. This advertisement is sponsored by the members listed here.

ATLANTA GA.

ATLANTA GA.:
Rittenbaum Bros., 691-701 Houston St., N.E.
BROOKLYN, N.Y.:
Delia Waste Products Corp.,
1625 Dean St. (13)
Horton Wiping Materials Co.,
96 N. 10th St. (11)
CHICAGO, IIL.
American Sanitary Rag Co.,
236 W. 37th St. (9)
Chicago Sanitary Rag Co.,
2137 S. Loomis St. (8)

DETROIT, MICH.:
Ace Wiping Cloth Co.,
7355 Bryden Ave. (10)
Consumers Paper Co.,
5170 Vermont Ave. (8)
PITTSBURGH, PA.:
Armstrong Sanitary Wipers Co.,
1233 Spring Garden Ave., N.S. (12)
Scheinman-Neaman Co.,
1024 Vickroy St. (19)
ROMEO, MICH.:
The W. Rumsey Co.

For prices and samples, write any member. For Institute specifications, write any member or The Sanitary Institute of America, 105 W. Monroe St., Chicago 3, Ill.

THE SANITARY INSTITUTE of AMERICA

For More Information Circle No. 280 on Inquiry Card-Page 17

Control Unit Reduces **Tool Costs**



The Cross Co., Dept. 53 P. Detroit 7, Mich., is producing a tool control unit, available for all types of metal working equipment, including screw machines, drill presses, gear hobbers, punch presses, gear shavers and milling machines. It is claimed to decrease sharpening expense and increase machine efficiency. Operation is simple. The pointer on the "Toolometer" is set at a point representing the expected output of pieces per tool sharpening. It indexes counter clockwise with each machine cycle. When it reaches zero, the machine automatically shuts down for a tool change.

Circle No. 56 on Inquiry Card-Page 17

Electric Loader Can Be Installed in Most Locations



Because no ground excavation or special foundation is necessary an electrically powered lift may be placed on upper floors, driveways or almost any location, where loading and materials handling service is needed. Lifting power for the "Electro-Loader" is supplied by an electric motor operating a simple cable mechanism which raises the checkered steel plate platform to an above-floor height of 5' 103/8". For accurate control and safe operation, it is equipped with adjustable automatic top and bottom limit stops, centrifugal governor and safety brake. It is made by Globe Hoist Co., E. Mermaid Lane and Queen St., Philadelphia 18, Pa.

Circle No. 57 on Inquiry Card-Page 17



Keep a line on prices by Long Distance

To keep pace with price trends,
turn to the telephone. It helps you
find the best offers right now—
gives you up-to-the-minute facts
on which to base your buying decisions.

Long Distance Doesn't Cost. It Pays

Hundreds of firms save time and money through the planned use of Long Distance in Purchasing. We have specific suggestions based on their experience and we'll be glad to pass them along to you.

Just call the Bell Telephone Business Office and a representative will visit you at your convenience.



LONG DISTANCE RATES . ARE LOW

Here are some examples:

Cleveland to Pittsburgh 60¢

Indianapolis to Akron 90¢

Boston to Philadelphia 95¢

New Orleans to Dallas . . . \$1.25

New York to Seattle \$2.50



These are the daytime Station-to-Station rates for the first three minutes. They do not include the federal excise tax. Long Distance rates are even lower after 6 o'clock every night and all day Sunday. Call by Number. It's Twice as Fast.

BELL TELEPHONE SYSTEM



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Saw Cuts Off Ferrous, **Non-Ferrous Material**

A circular saw has been put on the market by Motch & Merryweather Machinery Co., Penton Bldg., Cleveland 13, Ohio, to cut ferrous or non-ferrous stock up to 43" diam. The saw head is powered by a 30 hp, 900 rpm motor connected by multiple belts and sheaves to the gear train. The final spindle drive has large, heavy duty, herringbone gears. The face of the spindle is 20" diam, with four pins supplying the mounting and saw blade. Stock to be cut is placed in the vee block at the front of the machine. Clamping is by means of hydraulic cylinder connected through linkage to a heavy roller chain. Large diameters are accommodated by removing jaw sections of the vee block.

Palletizing Press Cuts Out Tensioning Tool Need

Circle No. 58 on Inquiry Card-Page 17



The American Baler Co., Bellevue, Ohio, has designed a palletizing press, the "Pallet Packer," which features ease of operation. The need for a tensioning tool in tightening banding wires has been eliminated. An operator simply passes bands around the load, pulls them snug, and attaches clips while the platen is exerting pressure. Releasing the platen allows the clipped bands to securely tighten. Constantly uniform loads result. Loading versatility is obtained with adjustable push button controls that can be set for floor

YOU CAN GET MORE INFORMATION ON ANY ITEM, SHOWN IN THIS ISSUE. JUST USE THE INQUIRY CARD PAGE 17

level operation, with materials trucked directly on or off. It can also be raised to conveyor height if needed.

Circle No. 59 on Inquiry Card-Page 17

Recorder Controllers Monitor Processes



A line of process instruments including potentiometers, a-c bridge recorders, and recording controllers is announced by the Meter & Instrument Dept., General Electric Co., Schenectady 5, N. Y. The instruments are designed for continuous measurement and control uninterrupted by periodic standardization and incorporate new measurement circuits and components. Foremost among the new features are a magnetic standard in the pontentiometric system and a bridge balancing unit in the a-c bridge system. There are two models, both available with either electric or pneumatic control. A centerless pointer, leaving almost all the chart to view, simplifies reading.

Circle No. 60 on Inquiry Card-Page 17

Continuous-Cast Bronze Tubing **Cuts Bronze Bushing Costs**

American Smelting and Refining Co., Barber, N. J. says that it is possible to reduce waste-ends and cut production costs of sleeve-type bronze bushings if sand cast bronze bushing tubing stock is replaced with continuous-cast bronze tubing. It can be purchased in longer lengths (8 ft. to 9 ft. against 13" customary for sand castings) and is easier to chuck in a turret lathe. In addition, in working the continuous-cast bronze there are fewer rejects. It has no blowholes or porosity. Using the continuous-cast bronze also results in longer tool life. Higher cutting speeds are possible and there is less stock removal required.

Circle No. 61 on Inquiry Card-Page 17

REYNOLDS DISTRIBUTORS

ALABAMA Southern States Iron Roofing Co., Birmingham CALIFORNIA CALIFORNIA
Braico Metals, Inc., *Los Angeles
Clingan & Fortier, Inc., Fresno, *Los Angeles, San
Francisco and Vernon
Turner Metal Supply Co., (Wire, Rod, Bar)
*Huntington Park
Union Hardware & Metal Co., *Los Angeles
United States Steel Supply Div., Los Angeles
CONNECTICIT CONNECTICUT
American Steel & Alloys Corp., *Hartford
Peter A. Frasse & Co., Hartford
Scovill Mfg. Co., (Wire, Rod, Bar) *Waterbury FLORIDA

-Wilson, Inc., Jacksonville, Miami, Orlando and Tampa
Southern States Iron Roofing Co., Jacksonville, Miami,
Orlando and Tampa

GEORGIA
Horne-Wilson, Inc., *Atlanta
Southern States Iron Roofing Co., Atlanta and
*Savannah

*Savannan
ILLINOIS
Aluminum Distributors Inc., *Chicage
J. G. Braun Co., (Architectural only) Chicage
Scovill Mfg. Co., (Wire, Rod, Bar) Chicage
United States Steel Supply Div., *Chicage
Benjamin Wolff & Co., *Chicage

INDIANA
W. J. Holliday & Co., *Indianapolis and Hammond
Kasle Steel Corporation, Elkhart KANSAS Industrial Metals, Inc., Wichita KENTUCKY

outhern States Iron Roofing Co., Louisville LOUISIANA Southern States Iron Roofing Co., New Orleans

MARYLAND Clendenin Bros., Inc., *Baltimore Lyon, Conklin & Co., Inc., *Baltimore

MASSACHUSETTS Arthur C. Harvey Company, *Boston

MICHIGAN Kasle Steel Corporation, *Detroit and Grand Rapids McDonnell Bros., Inc., (Architectural only) *Detroit Meier Brass & Copper Co., *Detroit

MINNESOTA
MacArthur Co., (Architectural only), *St. Paul
United States Steel Supply Div., St. Paul
Vincent Brass & Copper Co., *Minneapolis

MISSOURI Industrial Metals, Inc., *Kansas City and St. Louis United States Steel Supply Div., St. Louis

United States and States Williside Redgoomb Steel Corporation, Hillside Peter A. Frasse & Co., Lyndhurst Mapes & Sprowl Steel Co., *Union

J. G. Braun Co., (Architectural only) *New York
Edgcomb Steel Corporation, Hillside, N. J.
Peter A. Frasse & Co., Buffalo, *New York, Rochester

Syracuse
Mapes & Sprowl Steel Co., Union, N. J.
Ontario Metal Supply, Inc., (Wire, Red, Bar) NORTH CAROLINA

Southern States Iron Roofing Co., Raleigh OHIO
Bridgeport Brass Co., (Wire, Rod, Bar) Cleveland
Kasle Steel Corporation, Cleveland
Mutual Manufacturing & Supply Co., *Cincinnati
Varys Brothers, Inc., *Columbus

OREGON Woodbury & Company, Coos Bay, Eugene, Medford and *Portland

PENNSYLVANIA PENNSYLVANIA Athos Steel Service Co., *Philadelphia Peter A. Frasse & Co., *Philadelphia Merchant & Evans Co., *Philadelphia Penna. Industrial Supplies Co., Inc., *Pittsburgh Potts-Farrington Company, Philadelphia SOUTH CAROLINA Southern States Iron Roofing Co., Columbia

TENNESSEE Southern States Iron Roofing Co., Memphis and Nashville

TEXAS
Moncrief-Lenoir Mfg. Co., Dallas, Harlingen,
*Houston, Lubbock, San Antonio and Temple
Vinson Supply Co., *Dallas, Odessa and Snyder Salt Lake Hardware Co., *Salt Lake City

VIRGINIA Southern States Iron Roofing Co., Richmond WASHINGTON Clingan & Fortier, Inc., Seattle WISCONSIN Benjamin Wolff & Co., Milwaukee

Look Under "Aluminum" in Your **Classified Telephone Directory**

Rely on Your Nearby Reynolds Aluminum Distributor for

Extra Equipment That Lowers Costs

- No capital tie-up in equipment
- •Release needed floor space
- **Eliminate** additional operations
- •Reduce metal waste
- Save shop time and labor

Slitting, cutting, shearing, sawing and other specialized operations are money-saving services we offer.

Let us show you how our distributor services and equipment can eliminate some of your problems, and, at the same time, save you money.

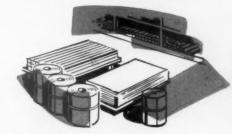


PLUS THESE ADVANTAGES



PROMPT SERVICE AND DELIVERY

You get fast delivery on both your "rush" orders and regular shipments. This helps you keep production on schedule . . . eliminates costly delays waiting for mill shipments.



CONVENIENT WAREHOUSE STOCKS

We can help you eliminate capital tie-up in obsolete or idle inventory . . . you can cut your stock record keeping, accounting cost and warehouse overhead.



YOUR PARTNER IN PRODUCTION

Whenever we can, we will help on your production problems. Reynolds technical service men in the field and the fully integrated staff at Reynolds home office work hand in hand with us.



Call us today for Reynolds Aluminum Distributor Service.

We're as near as your phone.



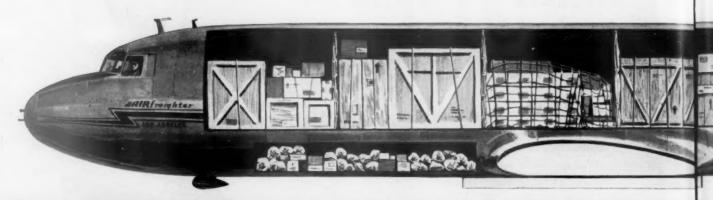


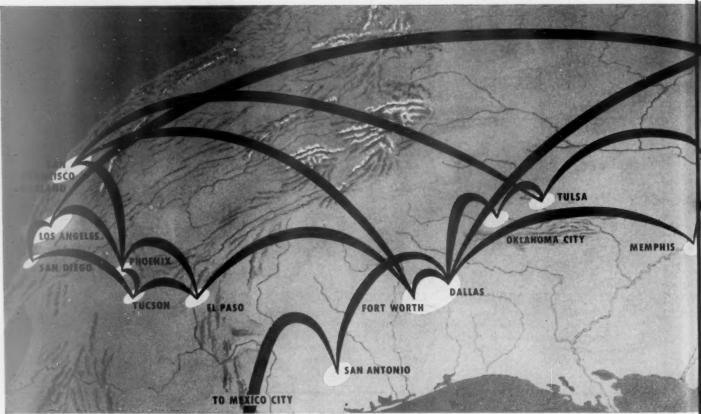
MODERN

For More Information Circle No. 282 on Inquiry Card-Page 17

We've got the right SPACE

American Airlines has the greatest capacity in the -more planes carrying freight to more places





Capacity, of course, is one measure of a carrier's ability to deliver the goods. That's why it's important for you to know American Airlines has the greatest cargo capacity in the airfreight field.

But, equally important, when it comes to specifying a carrier, is the availability of that space—having it where and when it can best serve you. Here again, American leads all others.

• While providing fast and frequent service to seventy-seven key cities throughout the Country, only American serves two-thirds of the top thirty retail markets—all twenty-three of the leading industrial states.

Add this to American's superiority in expe-

at the right PLACE!

airfreight field
than any other carrier

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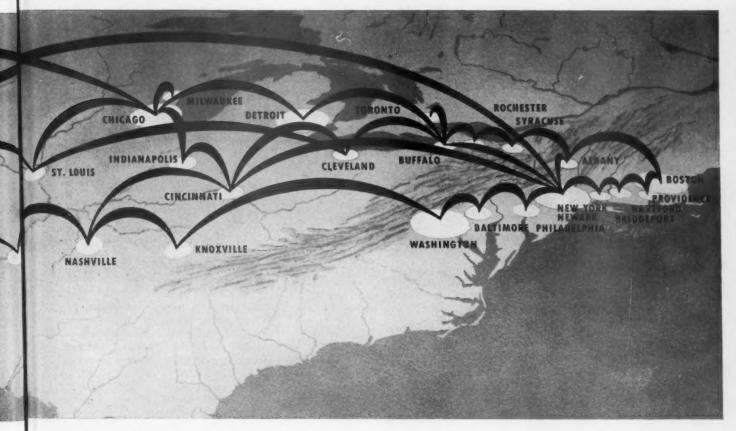
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rience and handling facilities and you'll readily see why American Airlines is best qualified to handle your shipments, while helping solve your distribution problems. For complete information, write or wire collect to: American Airlines, Cargo Sales Division, 100 Park Avenue, New York 17, New York.

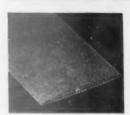
AMERICAN AIRLINES INC.

Americas Leading Airline

For More Information Circle No. 283 on Inquiry Card-Page 17

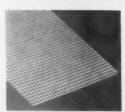
If you use protective packaging of any type, in any quantity . . .

SPECIAL ADVANTAGES!



LORODENT PACKING PADS

Prevent scratches, scrapes . . . extra strong, flexible, shock-absorbing. Your choice in number of plies, type of outerwrap.



IMPROVED INTERLEAF LORODENT

Perfect internal packaging for nesting fragile and expensive merchandise. Also makes a good protective covering for highly polished and easily marred surfaces.



LINED FLEXIBLE LORODENT

Lined wall gives added strength, springier texture. Ideal for packaging a wide range of products, from baby bottles to water heaters. Makes fine self package, too. Available in rolls, sheets, sleeves, tubes.

See how LORODENT can save you time...money!

COMPLETE LINE. There's a Lorodent protective material to fit your packaging needs exactly. Compare and choose from the complete Lorodent line . . . all ideal materials for packaging a wide range of products. Fill your needs quicker, easier, from one supply source. Combine shipments to earn lower rates.

REALLY COMPETITIVE PRICE. Because of these added features, you may imagine Lorodent expensive. Far from it! Prices are most moderate, extremely competitive. All we ask is the chance to prove to you how really competitive Lorodent prices are!

Find out today how you can give your merchandise maximum protection at minimum cost with Lorodent Packaging Materials.

Write, wire or phone for samples and prices.

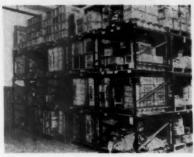
PACKING PADS . LINED FLEXIBLE LORODENT . IMPROVED INTERLEAF LORODENT

LOROCO

INDUSTRIES, INC. • READING, CINCINNATI 15, OHIO

For More Information Circle No. 284 on Inquiry Card-Page 17

Steel Pallet Frames Facilitate Stacking



durable steel Rugged, frames, manufactured by The Frick Gallagher Mfg. Co., Wellston, Ohio, permit warehouse pallet loads to be stacked to the ceiling without crushing packages on lower pallets. Also, loads on lower pallets may be removed without disturbing heavy items stored above. The steel frames are set on standard 48" wood storage pallets to permit easy stacking by fork lift trucks. Each loaded pallet rests on the steel frame below, putting no crushing weight on loads underneath.

Circle No. 62 on Inquiry Card-Page 17

Cost of Magnetic Sweeper Is Self-Liquidating

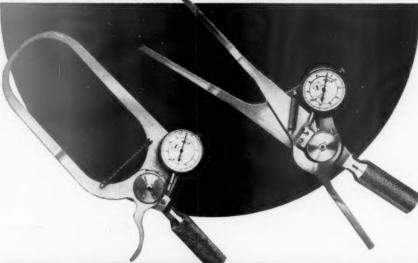


A lightweight magnetic sweeper has been developed to remove nails, wire and other tramp magnetic materials from roadways, factory aisles, etc. Its use is claimed by the makers, The Homer Mfg. Co., Inc., Lima, Ohio, to pay for the sweepers in a very short time in savings of tires, downtime of vehicles, personnel safety and recovery of valuable scrap material. The sweepers consist of a permanently energized Alnico V magnet as-sembly, mounted on semi-pneumatic tires. There are three models, one for light duty, one for heavy duty and one for duty requiring high-intensity magnetic attraction. Seven sizes from 12" to 72" are available in each model.

Circle No. 63 on Inquiry Card-Page 17



AMES



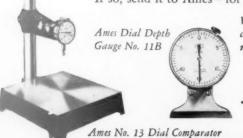
Long or Short: Curved or Straight

CALIPER GAUGES. Custom-built to fit your exact need

Whatever your measuring problem – whether it's the inside dimensions of a pipe, the wall thickness of a casting, the outside dimensions of a rocket – Ames can build the caliper gauge that fills your requirements.

Ames caliper gauges are made of carefully-finished heavy gauge steel and are equipped with an Ames exclusive: a chordal error correcting cam that assures accurate readings. Ames calipers are available with contacts of various shapes — ball, flat or pointed — made of carbide, hardened steel, or sapphire.

Your measuring problems may involve a caliper gauge. If so, send it to Ames – for a quick, profitable solution.





Representatives in B. C. AMES CO. 31 Ames Street principal cities. B. C. AMES CO. Waltham 54, Mass. Mfgr. of Micrometer Dial Gauges • Micrometer Dial Indicators

For More Information Circle No. 286 on Inquiry Card-Page 17

Work Holder Cuts Need for Special Fixtures



A multi-purpose work holder, manufactured by Lassy Tool Co., Plainville, Conn., is claimed to provide a basic tool ideal for scores of holding applications and to replace the need for many costly special fixtures. Standard interchangeable jaws and clamps for holding single or multiple pieces hold odd shapes as well as regular. The tool has a base with slots for bolting to machine table. There is a through hole to accommodate long work. The compensating clamps for multiple holding allow pieces to be held with equal pressure even if they vary as much as 1/32 in size.

Circle No. 64 on Inquiry Card-Page 17

Counter Simplifies Checking Conveyor Packages



An inexpensive case counter that provides an accurate, automatic check of the exact number of cartons or packages that have passed over a section of gravity wheel conveyors is now being manufactured by The Rapids-Standard Co., Inc., Grand Rapids, Mich. It fits on the company's 12-RS-6 and 12-RS-10 gravity conveyor models without rearrangement of wheels or on other models of 12" or 18" wide wheel conveyor by removing or rearranging one or two wheels.

Circle No. 65 on Inquiry Card-Page 17



What's Behind This Cutting Oil Picture?

Behind this cutting oil picture there's a story well worth telling... a story of 10 years' operation of the M.O. Devers Screw Machine Products Company.

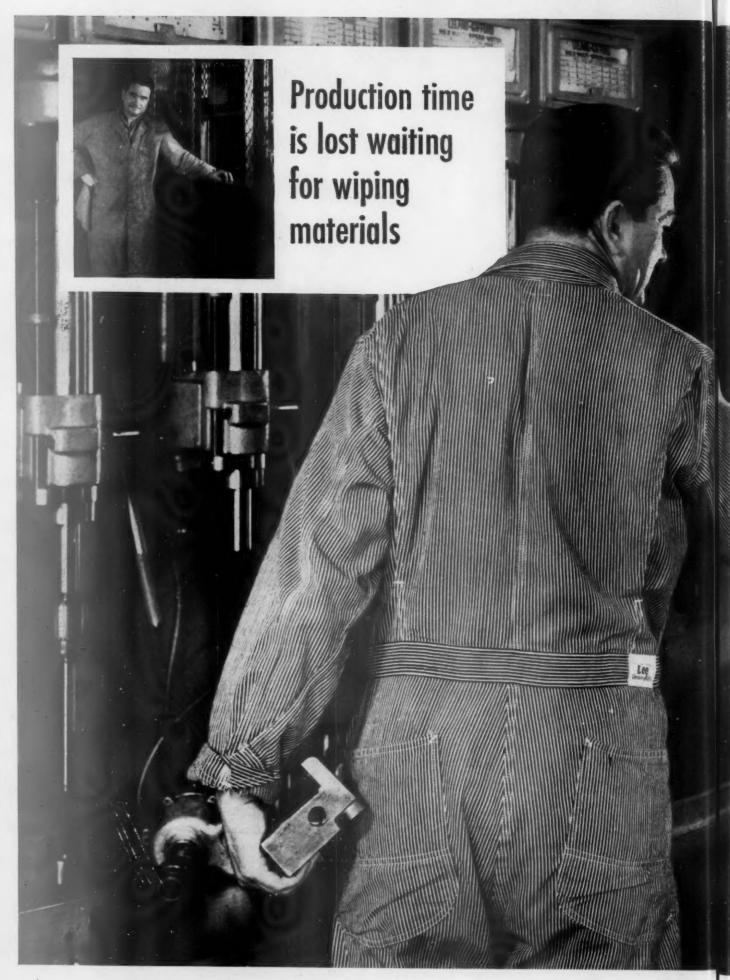
During this time Devers has acquired and maintained a reputation for turning out the very highest quality precision machined parts and turning them out on time.

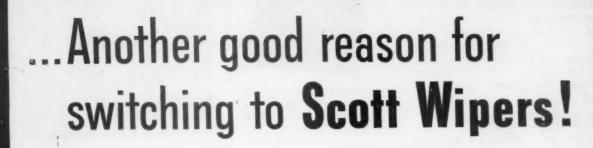
And during this same period, the oil that has helped Devers to achieve this enviable record is Cities Service Chillo #10 Cutting Oil. This one unusual oil

has been used for work covering 1018, 1020, 4140, and stainless steel, and, says Devers official Harry E. McDaniel, "We have found it superior for <u>all</u> these machining operations."

For longer tool life, closer tolerances, and a simpler cutting operation, you—like the M. O. Devers Company—will find it profitable to investigate Cities Service Chillo Cutting Oils. Contact your nearest Cities Service representative or write Cities Service Oil Company, Sixty Wall Tower, New York 5, N.Y.







Instead of having to leave the job to get clean wiping material, workers keep a box of Scott Wipers next to them all day long. This simplified system of distribution and control saves valuable production hours.

Scott Wipers are sanitary, disposable. They end the laundering problem . . . greatly reduce the

costly scratches and digs in finished work caused by chips lodged in wiping materials.

They are soft and absorbent, yet each Scott Wiper is two-ply and tough.

Whatever you're using now—compare them with Scott Wipers for cost, convenience, performance.

The Scott representative or distributor in your area will be glad to help you set up a production-line demonstration in your plant. Call him or mail the coupon today.

Scott Paper Company, Dept. P.2, Chester, Pa.
Please send me full information on Scott Industrial Wipers.

Name_____Position____

Company

Address_____City___State____

Information Here

"HOW TO LOWER YOUR COSTS" can have as many answers as there are departments and employees in your plant. A good first move is to know the equipment available which could raise manufacturing efficiency, cut unit production costs and work for greater employee contentment.



have this complete informative CM Catalog at his fingertips. Your copy sent on request.

EVERY PLANT EXECUTIVE should



HOISTS . TROLLEYS TRAVELING CRANES



duty wire rope electric hoist. Single and two speed models. Many exclusive features

CH CYCLONE

14 to 10 ton capacities. Lightest weight and most efficient chain hoist. Rugged aluminum alloy construction for heavy duty and long life.

CM PULLER

34, 114, 3 and 6 ton capacities. Lifts and pulls at any angle. For 1,001 jobs. Lowcost. Safe and easy to operate.

> CM TROLLEYS Low headroom. Tandem, Matchless and Moore styles. Plain, geared or motor driven.





1/8 to 2 ton capacities. Portable, ompact and rugged electric chain hoist. Available in push button and pendant rope control models. Plug in on 110, 220 or 440 volt



CHISHOLM-MOORE HOIST DIVISION

COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK DISTRICT OFFICES: NEW YORK, CHICAGO, CLEVELAND

In Canada: McKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

For More Information Circle No. 289 on Inquiry Card-Page 17

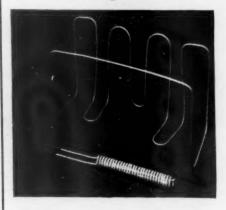
Contact Wheel Cuts Costs



A new contact wheel is said by the manufacturer, Chicago Rubber Co., 2640 North Clybourn Ave., Chicago, Ill., to combine aggressiveness with softness and conformability. It was developed for coated abrasive belt polishing and finishing. It is made of a red rubber compound, abrasive and oil resistant. It offers for the first time a high tensile 20 durometer wheel which can be safely run at speeds up to 10,000 feet per minute. Tests have shown that the new wheel can save \$9 per man per shift matched against bias buff contact wheels.

Circle No. 66 on Inquiry Card-Page 17

Heating Units



Heaters manufactured by the Industrial Heating Dept., Westinghouse Electric Corp., Meadville, Pa., are available in continuous lengths up to 25 ft, with an outside diameter as small as .230 in. They can be formed into shapes and sizes to heat effectively almost any surface or enclosure. Use of single, low-watt density heaters in lengths as long as 25 ft eliminate the "sets" of two or more heaters which require additional terminals and assembly labor. The "Corox" heaters are made in copper, steel, aluminum, Incaloy, Inconel and other alloy tubings.

Circle No. 67 on Inquiry Card-Page 17

Leakproof-V-rings

Unique revolutionary design now makes possible, for the first time, a split V-ring packing that is really leakproof in operation . . . foolproof to assemble:

LINEAR VEE-DAM RINGS



AGAINST LABYRINTH FLOW

LINEAR VEE-DAM Rings last longer, because they seal perfectly with minimum gland load. We're molding VEE-DAM Rings, in a choice of fabric-reinforced elastomers, individually engineered to your needs. Write or call for full information now!

LINEAR, Inc., STATE ROAD & LEVICK ST., PHILA 35, PA.

For More Information Circle No. 290 on Inquiry Card-Page 17



BLINDED BY TEAR GAS but still shooting, a killer, twice-escaped from prison, staggers out of a Los Angeles bungalow into the arms of Sergeant Friday and his partner. Jack Webb, as Sgt. Friday, stars in this true-to-life series based on actual police cases. With "Badge 714" began a race against time in which millions of dollars are involved. Air Express helps NBC win it.

"DRAGNET!"

How the top detective drama of all TV networks is also seen locally in 152 markets as "Badge 714"

Continuing its highly successful run as the leading program on the NBC-TV Network, "Dragnet" has proved so popular that, in addition, it is being re-run throughout the country as "Badge 714." This local syndication schedule is made possible only by Air Express.



KHQ-TV, SPOKANE -\$8.55 less*

POLICE FILES provide the material that keeps about 65 million Jack Webb fans glued to their TV sets each week. A large percentage of them see him under syndicated (locally sponsored) title "Badge 714." Schedules to the 152 syndicated markets are rigid. Air Express gets the film there on time.



WHO-TV, DES MOINES -\$3.47 less*

JACK WEBB INSISTS that sets be built to duplicate Los Angeles Police Headquarters, to the very door knobs! It is this passion for realism which attracts audiences for "Badge 714" worth millions of dollars to sponsors. NBC can't afford to have film arrive late, and so it is shipped regularly by Air Express.



KFEL-TV, DENVER -\$5.51 less*

FROM BIG CITIES and small towns, people write in to ask whether Sgt. Friday isn't an actual member of the Los Angeles Police. Many television stations are in cities with no airline connections, but Air Express connects through Railway Express. "Badge 714" films get there on schedule, just the same!



KXLF-TV, BUTTE -\$4.87 less*

A MADMAN tried to blow up the Los Angeles City Hall. Jack Webb made it into his first NBC "Dragnet" show. Now it's making history again as "Badge 714," the hottest syndication property in the industry. "Air Express makes our syndicated operations possible," says NBC's Frank Lepore, head of Film and Kinescope Operations.



WLWA-TV, ATLANTA -29¢ less*

THEY CALL IT "BICYCLING." Every week, NBC Film Exchanges in New York and Hollywood have 4,000 film or kinescope programs in circulation to and from stations. This method, called bicycling, saves thousands of dollars in film and shipping costs. It is only possible by Air Express, with its ability to pinpoint shipments.



KSD-TV, ST. LOUIS -63¢ less*

HUMAN ERROR does occur. One film arrived in Springfield, Missouri, addressed to Station WICS. The Air Express Agent wired NBC, "No WICS in city. Please advise." The film was trans-shipped to Springfield, Illinois (where there is a WICS) and arrived in time! Alert agents protect against error or changing circumstance.

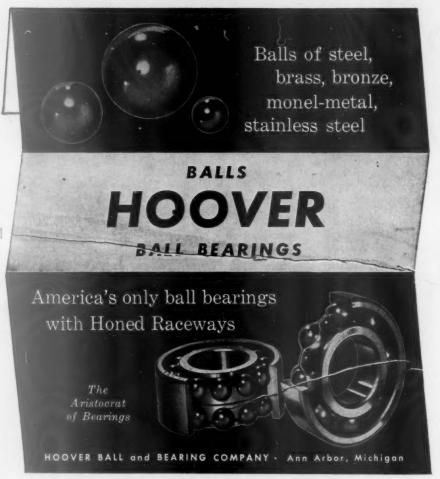
gets there first via AII EXPIESS



U. S. Scheduled Airlines...call Air Express ... division of Railway Express Agency.

*Less than any other air service (from N. Y.) that includes door-to-door pickup and delivery. "These are examples of what we save on 87% of our air shipments by using Air Express. With 97,000 NBC shipments a year, the figure is impressive. The one thing that impresses us more is Air Express service."—Frank C. Lepore, Mgr., Film and Kinescope Operations and Services.

For More Information Circle No. 291 on Inquiry Card-Page 17



For More Information Circle No. 292 on Inquiry Card-Page 17

. AMERICA'S FIRST WIRE FENCE .



 Page Chain Link Fence, pioneered by Page and made only by Page, is quality controlled from raw metal to erected fence. Whether you choose heavily-galvanized Copper Bearing Steel, or long-lasting Stainless Steel, or corrosionresisting Aluminum, you'll have a rugged fence on sturdy metal posts deep-set in concrete. Choose any one of 8 basic styles, varied by heights, types of gates, posts, top rails and barbed wire strands for extra protection. And to be sure of reliable workmanship your fence will be expertly erected by a specially trained firm. For helpful Page data and name of member nearest you...

Write to PAGE FENCE ASSOCIATION, Monessen, Pa., or look in Thomas' Register for listing of Page Chain Link Fence Distributors under "PAGE STEEL AND WIRE DIVISION," or see MacRae's Blue Book for listing under "FENCING, WIRE, LINK," or consult Sweet's Industrial Construction File.

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

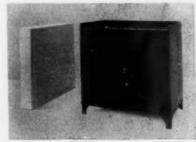
For More Information Circle No. 293 on Inquiry Card-Page 17

Cigarette Vending Machines



The Superior Mfg. Co., 2144 Ashland Ave., Evanston, Ill., is producing a line of cigarette vending machines which are sold outright to industrial plants for employee cigarette self-service. It may be set to sell cigarettes at any price between sixteen and thirty cents. Matches are also dispensed, if required. Profits from the machine can be used for such purposes as employee sickness or recreation funds, etc. Circle No. 68 on Inquiry Card-Page 17

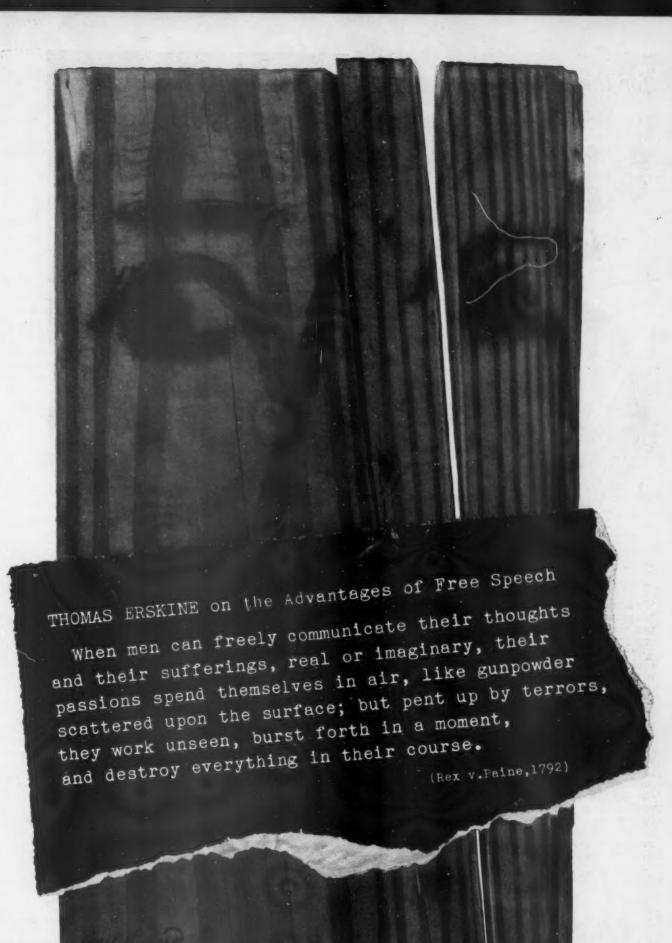
Knock-Down Tool Cabinets Save up to 25% in Costs



Three models of knock-down tool cabinets, designed for use in plant tool and maintenance shops or on production lines, have been developed by Standard Pressed Steel Co., Jenkintown, Pa. Besides saving from 15% to 25% (depending on model) in initial cost, the cabinets save space in storage. They can be assembled with a screw driver and wrench. The models come in singledoor and double-door models in sizes: 15" x 21" by 34" high for the single door model and in 181/4" x 36" x 35½" high or 24" x 36" x 35½" high for the double-door model.

QUICK—CONVENIENT Use the Inquiry Card on Page 17 for additional information on any product

Circle No. 69 on Inquiry Card-Page 17



Great Ideas of Western Man...(one of a series) CONTAINER CORPORATION OF AMERICA

... for the world's finest gauge:

the world's finest movement





To actually become the standard of comparison in its field, a product must be better; not just in some ways, but in all ways.

A particularly good example of

such a product is the Marsh Master-gauge. By giving industry a gauge that is better in all ways, it has become the recognized standard of comparison in the pressure gauge field.

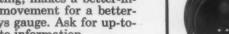
The movement illustrated here represents just one way-but a very important way—in which the Mastergauge excels. In a pressure gauge, the movement has the vital assignment of converting the action of the bourdon tube into accurate pressure indication. To do this unfailingly, a movement must be ruggedly constructed, practically frictionless

and highly resistant to corrosion.

All of these attributes are ideally combined in the Master gauge movement. A self-lubricating, frictionless effect is achieved by using alternate stainless steel and monel throughout . . . gears, hardened stainless; bushings, "K" monel, and so on through all moving parts. A particularly outstanding feature contributing lasting accuracy is the "coined" sector gear. Note the broad face which results from this coined extrusion of the gear blank.

Yes, features like these, along

with precision machining, painstaking assembly, and thorough-going testing, makes a better-inall-ways movement for a betterin-all-ways gauge. Ask for up-to-the-minute information.



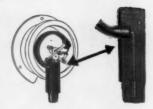
MARSH INSTRUMENT CO., Sales affiliate of Jas. P. Marsh Corporation

Dept. G, Skokie, Illinois Export Dept., 3501 Howard St., Skokle, III.

H GAUGES



ometers • Water Regulating Valves • Solenoid Valves • Heating Specialties



A better tube construction...

"Connocueld" A truly revolutionary development is the joining of the socket, bourdon tube, and end-piece into a one-piece unit in the Marsh Mastergauge. The photo of a socket cut in half shows the perfect fusion at the property of the perfect fusion at the perfect the point where too many gauges leak.

A special Marsh process — the Connoweld Process — makes this possible.



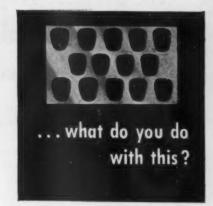
A better Case ...

"Marshalloy" Another recent development that has increased Mastergauge leadership is the copper-clad, wrought steel case. Copper surfaced by the Marsh-developed "Marshalloy" process, the case is attractive and noncorrosive. It is four times as strong and one-third lighter than conventional cast iron case!

PUZZLE for Purchasing Agents:







The Best Answer:

BUY BLANKS from REYNOLDS and Scrap Your Scrap Problems!

Blanks from Reynolds Aluminum Fabricating Service save you 30% scrap loss; save you scrap handling and scrap storage expense; speed your production by eliminating rejects, work stoppages and special operations. When you buy aluminum blanks from Reynolds, scrap as shown above is remelted immediately right at Reynolds plants. There is no costly loss of time, segregation and storing, reshipment between cities or diversion of valuable metal.

MEMO TO PURCHASING AGENTS: Sheared blanks, sheared and pierced blanks, punch press blanks—in fact all types of semi-fabricated blanks—are available from Reynolds Aluminum Fabricating Service. For information on blanks and on completed parts and final assemblies, call your Reynolds office listed under "Aluminum" in your classified directory or write Reynolds Aluminum Fabricating Service, 2056 South Ninth Street, Louisville 1, Kentucky.

Write for your free copy of the new 24-page "Catalog of Facilities." Get full details on the tremendous production facilities of Reynolds Aluminum, Fabricating Service.



See "Mister Peepers," starring Wally Cox, Sundays on NBC-TV.

REYNOLDS ALUMINUM

BLANKING . EMBOSSING . STAMPING . DRAWING . RIVETING . FORMING . ROLL SHAPING . TUBE BENDING . WELDING . BRAZING . FINISHING

For More Information Circle No. 296 on Inquiry Card-Page 17

The Simplest Way to make sure of safety In Safety Apparel

by Industrial for this company's prod-**TOUR** choice must then be Steel-Grip ucts are nationally known, nationally proved and nationally used in every industry by every industrial leader. This company has been solely in the safety apparel business for 43 years which is a whale of a resource of experience for you to draw upon. And you pay no more for this proven through and through quality. Insist on the genuine labeled Steel-Grip by Industrial at your industrial or safety supply dealer, and get

INDUSTRIAL GLOVES COMPANY

A CORPORATION

3001 Garfield St., Danville, III. (In Canada: SAFETY SUPPLY CO., Toronto)



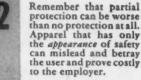
No. 14169 STEEL-GRIP OPEN END FINGER GUARDS

Since Industrial introduced Steel-Grip Finger Guards, they have been used successfully in every type of American industry. Made in open and closed end styles, in a choice of materials. Ask for literature describ-ing the various types. SIZES FOR MEN AND WOMEN. (U.S. Patents blo. 2,351,906, No. 2,461,872).



No. 633-4-GLOVE

Chrome leather general purpose glave. Steel sewn. Practically rip proof. Thumb patched and strapped. 2" or 4" cuff. Many other



Ask yourself what trademarked line not only enjoys widespread leadership for quality but has been manufactured long enough to have its lead-ership checked and challenged and proved on every industrial front, in every industrial risk. It is Steel-Grip by Industrial.

Remember that quality

alone can put safety into safety apparel ... quality

that results from proper design, selected materi-als, and careful work-manship.





"Woven-Gards" are hand protectors, mitts, pads, sleeves and aprons made of a long wearing woven cotton safety material. Provide flexibility, comfort, resistance to abrasica and exiting. Highly oil absorbed.

to abrasion and cutting. Highly oil absorbent, Excellent for handling oily, slippery sheets. Parous weave makes them the finest protector for handling lower temperature jobs. Excellent protection at lowest cost.



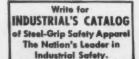
DYNEL CLOTHING

Dynel chemical resistant clothing. sistant clothing.
Coats, Pants, Shirts,
Laboratory Coats
and special designs
to order. We manufacture a complete
line of Industrial Safety Apparel in your choice of leather, asbestos, asbes-ton, aluminumized asbeston and glass cloth, flameproofed duck, plastic coated duck. wool and



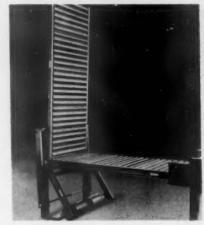
HALF JACKET

Welders' Coats and Pants. Leggings, Spats, Shin-guards, Aprons, Gloves, Mitts, Hand Pads. Leather, Athestos, Flangary Coafed,



For More Information Circle No. 297 on Inquiry Card-Page 17

Air-Operated Conveyor Gate Operates Across Aisles



The addition of a counterbalanced air operated gate to its conveyor line is announced by the Sage Equipment Co., 30 Essex St., Buffalo 13, N.Y. Fork lift truck operators do not have to get off their machine to operate the gate. Pressing a conveniently located button automatically raises it. When the operator gets to the other side of the conveyor, a mere touch of the other button lowers the gate to its original position.

Circle No. 70 on Inquiry Card-Page 17

Automatic Lubrication of Conveyor Wheel Bearings

Two models of automatic conveyor lubricators, that inject either oil or grease, are on the market. Model 702 lubricates one side of the conveyor only; model 704 lubricates both sides of a mono-rail conveyor. The lubricators automatically apply a controlled volume of lubricant to the wheel bearings of the conveyor trolleys. They can handle a wide range of lubricants from light oil to heavy fiber greases. The lubricator is a self-contained unit which is mounted on the trolley rail and actuated by the moving conveyor. A 12 lb reservoir and an air control panel are furnished as standard equipment. The manufacturer is J. N. Fauver Co., Inc., 51 West Hancock, Detroit 1, Mich.

Circle No. 71 on Inquiry Card-Page 17

Additional New Products on Page 310

YOU CAN GET MORE INFORMATION ON ANY ITEM SHOWN IN THIS ISSUE. JUST USE THE

> INQUIRY CARD PAGE 17

No. 225-14

ASBESTOS

Asbestos glove, 14° length. Underwriter's 2½ lb. per sq. yd. asbestos with tough chrome side split leather reinforcement over entire palm, face of all fingers, well around small finger. Thumb seam entirely away from wearing zone. Full line of asbestos gloves and mittens, plain and leather reinforced. Your choice of lined or unlined. 11°, 14° and 23° standard lengths. Special lengths or request.

GLOVE



FELT FOR VIBRATION ABSORPTION ...

FELT WICKING AND LUBRICATION ...

... and Always to Your Exact Specifications!

Western Felts are highly versatile! That's one of their tremendous advantages wherever you can use a felt component to help the performance of your product. We start with the very picking and carding of the millions of tiny wool fibres, with every process in our plant under our complete control!

Western Felts are made soft and springy, dense and hard, or of any of the unlimited degrees of density in between. They are conditioned for the exact jobs they are to perform, right down to the precision cutting to extremely close tolerances. Especially in the more dense consistencies, tolerances often

are as close as a few-thousandths of an inch!

Wear, age and weather do not affect Western Felt parts. They deaden sound, seal against dust, greases and oils, or they are made to absorb and feed oil when used for lubrication...exactly as you wish. Western Felt parts can be chemically treated for hardness, waterproofing, mothproofing, oil retention, abrasion resistance...or greater tensile strength.

Western Felt components will help solve many of your problems. You are invited to consult with our engineers.

WESTERN

4021-4139 Ogden Ave., Chicago 23, Illinois Branch Offices in Principal Cities



MANUFACTURERS AND CUTTERS OF WOOL FELT

Tyer Research Gives Breaker Points a "Break"!



The breaker points on magnetos used on motor scooters must be protected from water, dust and oil if the magneto-generator is to give good service. The Wico Electric Company overcame this problem by using a molded neoprene cover. This material is a high quality, especially durable compound developed by Tyer technicians. The cover is an ideal component, rigid enough to give protection – yet flexible enough for easy assembly.

examine custom molded rubber parts.

If you have a rubber problem, take advantage of Tyer's long experience in designing and manufacturing precision molded and extruded rubber products for unusual applications. Call in a Tyer sales engineer, or write for free catalog to Dept. 85.

7 7 68

RUBBER COMPANY

The Unusual in Rubber Since 1856
ANDOVER. MASSACHUSETTS

For More Information Circle No. 299 on Inquiry Card-Page 17



LIST PRICES F.O.B. Milwaukee, Wisconsin - Subject to Revision.

Cyl. Dia.		STOCK	STROKE	LENGTH	S - All	Double	Acting		
-	1"	2"	3"	4"	6"	8"	10"	12"	15"
11/2"	24.16	25.72	26.08	26.44	27.16	27.88	28.60	29.32	30.40
2"	26.24	27.88	28.32	28.76	29.64	30.52	31.40	32.28	33.60
21/2"	32.36	34.12	34.68	35.24	36.36	37.48	38.60	39.72	41.40
3"	35.04	37.28	37.92	38.56	39.84	41,12	42.40	43.68	45.60
4"	40.84	43.68	44.52	45.36	47.04	48.72	50.40	52.08	54.60
41/2"	48.96	51.92	52.88	53.84	55.76	57.68	59.60	61:52	64.40
6"	66.60	70.80	72.20	73.60	76.40	79.20	82.00	84.80	89.00
8"		126.80	129.20	131.60	136.40	141,20	146.00	150.80	158.00

By specifying NOPAK Shelf-stock, you buy quality cylinders at lowest prevailing prices, you eliminate waiting for "specials", reduce engineering costs. Compare the prices and scope of NOPAK Shelf-stock ($1\frac{1}{2} \times 1^{\prime\prime}$ to $8 \times 15^{\prime\prime}$) with competitive offerings — and you will specify NOPAK.

⊕ Basic mountings "A" or "E" convertible to "B", "C", "D" or "F", (see below) by changing cylinder heads. Add 10% to above prices (no extra charge 8" bore). ● Piston Rods NF male thread. ● Cushioning can be eliminated on rod, blank or both ends by removing spring and ball-check.

NOPAK 4-Way Valves, hand, foot, solenoid, or pilot operated, to actuate all cylinders, also in Shelf-stock.



For More Information Circle No. 300 on Inquiry Card-Page 17

Office Equipment and Supplies section of PURCHASING Magazine

NOVEMBER, 1954

Business shows are the great clearing house for new machines and developments in the office equipment field. Typical of all displays is this small cerner of a booth at the National Business Show in New York with its application display and intensely interested visitor.



OFFICE EQUIPMENT

News

Royal Typewriter Co., New York, is marketing a brand new model electric typewriter. Containing many of the previous model Royal features, the new machine is entirely re-engineered.



An additional feaure is an automatic vertical spacer which rolls the sheet down to a desired point without continual carriage returns. A "Line Meter", included in the machine's attractions, makes it possible to preset the machine so as to indicate when the bottom of the sheet is approached. Special indications show when the last 3/4" have been reached as well as the last typing line. Standard colors for the new machine are charcoal grey, nile green, tropic ivory, coral rose and horizon blue.

Circle No. 72 on Inquiry Card-Page 17

The National Vulcanized Fibre Co., Wilmington, Del., has renewed production of the Vul-Cot, Style No. 1, waste basket, the smallest of the Vulcot line. Fashioned in round taper style, it is 10" across the top, 8" across the bottom and is 12" deep. It is made of hard vulcanized fibre, a chemically converted cellulose product that will not crack, dent, splinter, rust or corrode.

Circle No. 73 on Inquiry Card-Page 17

Printed transparent index tabs, made by Superior Printing and Loose Leaf Co., Chicago, offer the unique feature of easy, one-operation indexing of ledgers, sales manuals, directories, etc. Called "Tabbies", they offer standard sets of indexes including alphabets, numbers, months, etc. No separate divider sheets are needed as Tabbies are completely transparent. They can be attached to any weight material, including light-weight tissues. Tabbies are self-sticking, need no moistening.

Circle No. 74 on Inquiry Card-Page 17

An entirely new type of continuous form for modern high-speed automatic tabulating equipment has been announced by Moore Business Forms, Inc., Niagara Falls, N. Y. Called



"Speediflo", it assures positive form register, accurate sheet-length control, faster feeding and trouble-free operation on all types of high-speed equipment, from tabulator through decollator. It is made with a narrow carbon and has special interlocking perforations which anchor all parts, including carbons, in place. Speediflo can be used on addressing, tabulating, billing, accounting machines, teletypewriters, detachers, decollators and other forms-handling equipment.

Circle No. 75 on Inquiry Card-Page 17

Flannel boards, for use in sales meetings and as sales demonstrators or any other instruction operations, are now available from Chase Bag Co., New York City. Called "C-Vue Boards", they are light in weight and easily and quickly set up.

Circle No. 76 on Inquiry Card-Page 17

"Manufacturing Control", a booklet describing the advantages of IBM methods for administering the functions of production management, is available from International Business Machines Corp., Dept. of Information, New York City.

Circle No. 77 on Inquiry Card-Page 17

A tabulating card file that greatly increases the efficiency of machine and operators in all types of punched-card operations is described in a new illustrated folder just released by Remington Rand Inc., New York. Known as folder LBV636, it gives the story of Remington Rand Aristocrat tabulating card file and Safe-File.

Circle No. 78 on Inquiry Card-Page 17



A new feed mechanism that insures wrinkle-free copies is one of the features of the improved model A-44 spirit duplicator of Duplicopy Co., Chicago. Bearing areas have been increased for longer life and a dual cam principle gives pin-point registration copy to copy and copy to master.

Circle No. 79 on Inquiry Card—Page 17 (Please turn to page 177)

THREE PURCHASING DEPARTMENT PROCEDURES SAVE YOU TIME...MONEY!

Increase The Efficiency of Your Purchasing Department

This 20-page, full-color manual pictures in detail the most modern, proved administrative control systems for purchasing. It shows many ways in which the efficiency of a Purchasing Department may be increased. See and

examine the methods used by some of the country's leading firms...when bids are needed ... when placing a purchase order ... when following up a purchase order ... and so on.

FOR YOUR COPY - SIMPLY CIRCLE X1202



PARTICIPATION OF THE PARTICIPA

New Purchase Order System Simplifies Procedures...Quickly Pays For Itself

Southern Railway has greatly simplified its purchasing procedures, reduced costs, eliminated loss of time and cut personnel turnover. How? With a new system which relies on a separate Remington Rand Visible Tip Folder for each active order. Now it is possible to get from the order clerk, immediately, a complete picture on any order...number of items bought...prices paid ...length of time for delivery...facts on the status of the order. The clerk needn't leave the desk! CIRCLE SN768.

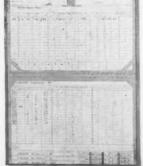
Improved Follow-Up Control Results in Office Time Saving of 80%

The Machinery Division of Dravo Corp., Pittsburgh, Pa., currently issue about 15,000 purchase orders a year. In the past, follow-through was based on regular paper copies of the orders, which were kept in standard vertical files. Each time reference was necessary, the clerk would remove the order copy from the file, bring it to the proper desk, subsequently refile it. Now, this time-consuming, laborious procedure is eliminated...with an estimated time saving of 80%. The follow-up copies of the regular set of purchase forms are Kardex forms which remain in four Mobile Kardex cabinets. He refers instantly to the order copy, takes indicated action and makes proper notations without removing the card.

FOR DETAILS OF THIS PROCEDURE SEE X1202



Traveling Requisition Simplifies and Speeds Purchasing



One of the most effective means of simplifying and speeding purchasing developed in recent years is the visible inventory control system that provides a traveling requisition. Clerks don't have to transcribe an order from an inventory card to a requisition blank. The top card of the inventory pocket, when removed, serves as the requisition. It saves much time because all information concerning suppliers, cost, previous orders placed, past usage, present inventory and other facts required for executive decision are contained right on the form. After the replenishment order is written, it is routed back to the inventory pocket for continued use.

GET FULL PARTICULARS - CIRCLE KD375

Remington Rand

Kindly circ	le the literat	ure you desire
SN768	X1202	KD37
Name		
Title		
Firm		
Address		
City	Tone	State

Equipment Manufacturers Show New Office Aids

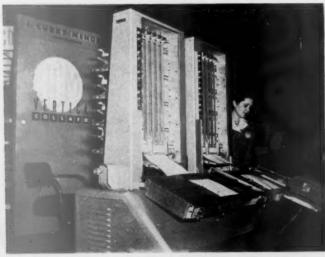
FFICE equipment manufacturers took full advantage of two big September shows to reveal the latest developments in costcutting, more efficient office tools. While the accent of both exhibits was concentrated on automation and mechanization, every tool, from the ordinary pencil to the highly complex punched-card interpreting and tabulating battery, was deliberately shown in its most efficient job and use.

In Chicago, the National Sta-

Kodak's Eastman Verifax copying ma-chine, with its speedy production of simultaneous three is demoncopies, strated to a prospective customer at the National Business Show in New York.

The history of the dictating machine was a graphic display of the growth and progress of dictating equipment. It occupied a corner of Dictaphone Corporation's exhibit at the National

High-speed machine collating that far outstrips laborious hand methods and eliminates the "human error" factor forms part of the display of the J. Curry Mendes Corporation display in New York's National Business Show.







Reconditioning worn and slightly battered tabulating cards is the value of the Cummins Carditioner of Cummins-Chicago Corporation. Interested spectators gather around a demonstration machine at the National Business Show.

Mechanical pencils and other vital office tools formed the heart of the big NSOEA exhibition in Chicago. Scene is at the Scripto, Inc., booth as visitors extended the quality items on display.



tionery and Office Equipment Association, in its 50th Anniversary Convention & Exhibit, drew many thousands of visitors to its mammoth display in the Conrad Hilton Hotel. A tour of the many booths revealed a wealth of office accessory equipment. Important items such as duplicators, files, inks, forms, writing tools, filing supplies and furnishings were strongly represented.

In New York, the 1954 Golden Jubilee National Business Show, sponsored by the Office Executives Association of New York, was a concentration of many of the more technical and automatic machines.

Drawn by the increasing interest in automation and "common language" machines, many visitors devoted much of their time to exploring the latest developments along these lines. Friden Calculating Machine Co., Inc., San Leandro, Calif., used part of its display area to demonstrate the use of its adding and calculating machines equipped with a tape-punching coder as a "common language" machine for interpretation on the Flexowriter automatic typewriter.

Manufacturers of dictating machines showed the variety of recording methods of today's market and the assets and benefits of their individual machines. In addition, a high spot of these machines was a display in the booth of Dictaphone Corp., New York, showing the growth and history of dictating machines from the early models to the present.

While it is quite true that a great deal of interest was shown in the field of "automation", as well as new developments such as A. B. Dick's Azograph duplicating process, many other office and business aids received numerous interested spectators. Means of production, inventory and purchase control proved big "drawing cards" during the show.

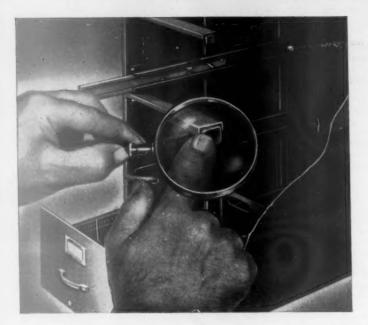
Maggie Magnetic, Inc., New York, with its magnetized control boards and markers, kept up a practically continuous demonstration on the ease and speed with which the magnetized system can keep a running account of the status of a production schedule or any similar application. Methods Research Corp., New York, showed the flexibility of its Flexi-Trol system of visual recording of production, main-

(Please turn to page 176)

Santa Claus in Chicago in September. Old St. Nick greeted the visitors to the booth of Speed Products Co. during the highly successful NSOEA exhibit. Ezyindex Products Co., catering to all companies needing filing and office supplies, draws some attentive visitors to its booth at the NSOEA show.







It pays to closely inspect the construction details when next you order metal office equipment. For instance, a close inspection of Peerless files will tell you why you can expect far more in the way of performance. You'll appreciate that the general overall rugged engineering details will result in unexpected life. You'll appreciate features like the heavy gauge cold-rolled furniture steel . . . the three heavy metal channel uprights welded to each side to form a single solid unit . . . the rugged cross pieces that are arc welded into the front uprights . . . the welding or permanent fastening of all parts . . . the ball bearing suspension slides . . . plus many other life-giving construction features. Your Peerless Dealer would like to make this close inspection with you-and when it comes to longer, far better service in office equipment, he's a good man to know. CLOSE INSPECTION assures you of longer, far better service





For More Information Circle No. 302 on Inquiry Card—Page 17

(Continued from page 175)

tenance, and sales scheduling.

The American Automatic Type-writer Co., Chicago, and its Auto-typists put on demonstrations of the preparation of sales letters, etc., with one girl operating a battery of three of the automatic machines. Working from prepared rolls of paper, very similar to old-fashioned piano rolls, these high speed machines reeled off line after line of a sales letter in precise, personal-looking type.

Time records, package typing machines, mail room aids, collators and many other important and useful items rounded out the exhibit.

While it may be hard to designate any particular tool as "new", the fact remains that improvements and further developments toward greater efficiency and cost reductions were the aims of the manufacturers. That the aims had been reached was evidenced by the many visitors around the display areas attentively concerned with the product demonstrations.

Rex-O-Graph, Inc., Milwaukee, has named Eddy C. Talbert as sales-executive assistant. Mr. Talbert has previously been in the fluid duplicating field with A. B. Dick, Columbia Ribbon and Supply and Old Town.

Remington Rand Inc., New York, and the Ozalid Division of General Aniline & Film Corp., Johnson City, N. Y., have announced that Remington Rand's Transcopy and Ozalid's bambino, typewriter-size copying machines, will be distributed by their sales organizations in all areas where both companies have direct representation.

Eugene I. Biggs has been named midwestern district sales manager for Koh-I-Noor Pencil Co., Inc., Bloomsbury, N. J. He will work out of Chicago.

Harold Knecht has been made mid-Atlantic district sales manager of Facit, Inc., New York.

A new sales and service branch has been opened in Beaumont, Texas, by Burroughs Corp., Detroit. M. Randolph Carpenter has been appointed manager of the new office.

Clary Multiplier Corp., San Gabriel, Calif., has named Robert A. Taylor as manager of its St. Louis factory sales branch. Mr. Taylor began his sales career with Felt & Tarrant in 1936, in the Comptometer division, and later was with Burroughs Corp.

A listing of 26,280 future-dates-at-a-glance is the feature of the Schedule-A-Date desk calendar for 1955 of Keith Clark, Inc., New York City. The feature gives exact dates for days, weeks and months ahead, for a whole year in advance, by merely glancing at the exposed date page. The Schedule-A-Date desk pad fits all standard calendar stands.

Circle No. 80 on Inquiry Card-Page 17



A new enlarger for 16mm and 35mm microfilm has been announced by the Industrial Photographic Division of the Eastman Kodak Co., Rochester, N. Y. A concentrated light source and the high resolution Kodak Micro-File Ektar 63mm lens project fine detail with increased sharpness and legibility at magnifications ranging from four to 45 diameters. The machine is called the Kodagraph Enlarger Model B.

Circle No. 81 on Inquiry Card-Page 17

The Fort Pitt Fixture Co., Pittsburgh, is now manufacturing, under license agreement, a new type file system for hanging blueprints, drawings and other large sheet materials. This wall-type system, known as the Martin Sheet File System, enables the user to work with a larger number of blueprints more efficiently and neatly because each sheet hangs flat and requires less storage space.

Circle No. 82 on Inquiry Card-Page 17

A new machine for imprinting variable descriptive data on die cut labels, is now available from Markem Machine Co., Keene, N. H. Designated Model 45AH, it accepts only notched, slotted or perforated labels, up to 7" wide by 3" long. Maximum imprint size is 6-11/16" wide by 2½" long. Maximum diameter of roll is 12". Operating speed is 70 labels per minute and power is supplied by a 1/3 HP variable speed motor.

Circle No. 83 on Inquiry Card-Page 17

A clear cement, especially recommended for paper work, has been recently announced by W. J. Ruscoe Co., Akron, Ohio. Ruscoe Paper Cement is made from pure gum rubber. Excess cement is simply rubbed away. Circle No. 84 on Inquiry Card—Page 17



Carbon Papers



Silk Typewriter Ribbons



Carbon Paper Ribbons



Tabulating Ribbons

The dollars you save on office procedure are true profit. There are no deductions for travel, entertainment or delivery costs. If you save a thousand dollars, you have made a thousand dollars.

But you lose these profit dollars when second-rate, undependable office supplies fill your wastebasket with illegible copies, smudged letters, work that has to be re-typed and ribbons and carbons that failed to stand up after short use.

Webster products help prevent this waste ...help you save money on office typing. This quality line of carbon papers, type-writer ribbons and spirit duplicating supplies is manufactured to exacting formulas that give you longer, better service. Every Webster product is inspected many times during the making.

Webster Quality Products make for office efficiency which means a substantial saving in expenses. Try the Webster line for a few weeks. Your empty wastebasket — and your cost records — will illustrate the difference.

F. S. WEBSTER COMPANY

7 Amherst Street Cambridge 42, Massachusetts

For More Information Circle No. 303 on Inquiry Card—Page 17

The pen that fills itself

The perfect gift for the desk writer

Fountain-base automatically fills pen every time pen is returned to socket. Pen writes a full page or more at each filling.

Finger grip never touches ink. No chance for ink to touch you.

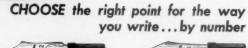
Fountain-base holds 40 times mcre ink than ordinary fountain pen. Won't leak. Won't flood. Easy to clean as

instantly interchangeable and renewable. More than 28 point styles.

Point

Fountain-base
"ink-locked" against
accidental spillage.
Only the pen
unlocks the ink.

24













2668 General writing 2284 Signature Stub 9314M Medium stub

Only a few of the most popular point styles shown

Esterbrook

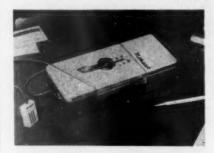
DESK PEN SETS

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY
The Esterbrook Pen Company of Canada, Ltd.,
92 Fleet Street, East; Toronto, Ontario

COPYRIGHT 1954, THE ESTERBROOK PEN COMPANY

For More Information Circle No. 304 on Inquiry Card—Page 17

A pocket-size tape recorder, the Midgetape, by Mohawk Business Machines Corp., Brooklyn, N. Y., is now



available. Only 8½" long, 3¾" wide, 1½" deep and weighing 3¼ lbs, it comes complete with a recording cartridge, batteries, crystal microphone and earphone. It is completely battery operated and uses a cartridge of magnetic tape about the size of a pack of cigarettes. Recording time is one hour and the tape is reusable by electronic erasing. Batteries are hearing aid type with a life of over 45 hours. A safety light indicates when battery life has only two hours additional recording time.

Circle No. 85 on Inquiry Card-Page 17

Ditto, Inc., Chicago, has developed a patented method of breaking down any list of items by item—each item on a separate piece of paper—without rewriting. A set of overlapped strips, called "Analyslips", are run through a Ditto duplicating machine to pick up one item on each Analyslip. As many as 30 such slips can be run through the machine at one time. The slips are then torn apart and used as desired. They can be used for inventory control, sales analysis, stock taking, labor tickets, move tickets, analyses of purchases, inspection unit copies, etc.

Circle No. 86 on Inquiry Card-Page 17



An automatic envelope inserter is being marketed by Printing Devices, Inc., Melrose Park, Ill. Called the Model 51 Insert-O-Matic, it needs only 40" x 16" table space and is 18" high. Its speed is 3000 insertions per hour, into any standard envelope from No. 6 to No. 10, including odd sizes and window styles. It has two separate feeding stations, one for envelopes and one for enclosures, and is so designed that it will insert from one to six folded sheets with or without staples. A free brochure, entitled "Does the Work of 5 Girls" is available on request.

Circle No. 87 on Inquiry Card-Page 17

MADE IN U.S.A. CANADA AND

ENGLAND

Four additions to its line of stencil hangers have been announced by Atlas Stencil Files Corp., Cleveland. The lug type SH series hangers, for serrated edge offset plates, are now available with lugs on the front and back of the hanger. The DSHA (11½" wide) files two 10½" wide plates. The DSHB (14" wide) files two 11½" wide plates. The newly designed DSHC (22a wide) files two 20½" wide plates and four 10½" wide plates. The lug type hanger is now available in a 22" width for use in Atlas' C Deluxe and C Jumbo filing cabinets.

Circle No. 88 on Inquiry Card-Page 17

New models of the Skot projector have been announced by American Optical Co., Projector Division, Chelsea, Mass. The projector is a 300-watt, blower-cooled, machine for 2 x 2 or bantam-size slides. An automatic slide changer, with a magazine holding 36 slides, can also be purchased as standard equipment with the projector.

Circle No. 89 on Inquiry Card-Page 17



A push-button holder for use with leads of all diameters in all degrees, is being marketed by Koh-I-Noor Pencil Co., Inc., Bloomsbury, N. J. Heart of the new holder is a so-called Adapto-Clutch, a gold-lined collet that holds all leads from 9H to 6B. It is guaranteed slip-proof against vertical pressure and turn-proof in all lead sharpeners and machines.

Circle No. 90 on Inquiry Card-Page 17

A nylon and Buna "N" desk drawer roller, which reduces storage drawer noise up to 72% and outwears steel, has been announced by Corry-Jamestown Mfg. Corp., Corry, Penna.

Circle No. 91 on Inquiry Card-Page 17

Globe-Wernicke Co., Cincinnati, has introduced a new line of hanging folders to extensive line of filing supplies. Called Verti-Swing folders, they are made from flexible, high-quality stock. Rounded steel rods with protective-coated ends are sealed firmly in the top edge of the folder. Verti-Swing frames can be adjusted for a snug fit in all standard file drawers.

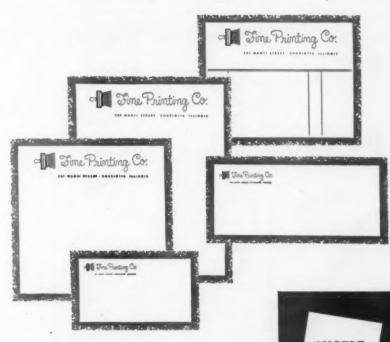
Circle No. 92 on Inquiry Card-Page 17

Matched Business Stationery

gets more attention, too!



Bond Papers



Gilbert Bond

25% new cotton fibre
Resource Bond Radio

Resource Bond Radiance Bond
50% new cotton fibre 75% new cotton fibre

Lancaster Bond

100% new cotton fibre



For More Information Circle No. 305 on Inquiry Card-Page 17



PRINT hundreds of FAST, CLEAN PERFECT COPIES

• IN MINUTES • IN 1 to 5 COLORS

Now, you can make 120 or more copies per minute of anything up to 9 x 14 inches in size — typed, written, drawn, traced or ruled — in 1 to 5 colors. All in one easy, inexpensive operation. The Heyer Conquerors, Manual and Electrically Operated, are the duplicators with ALL the features . . . priced much lower than comparable machines.

Model 70-Hand Operated—\$195 (plus tax)
Model 76-Automatic Electric—\$325 (plus tax)
Write today for FREE descriptive literature
and name of your nearest dealer—to:

THE HEYER CORPORATION
1830 S. Kostner Ave., Chicago 23, III.
For More Information Circle No. 307
on Inquiry Card—Page 17

Distinctive correspondence can now be achieved on any electric, standard or noiseless typewriter of Remington Rand Inc., New York City, with the introduction of a variety of executive type styles. Designed to suit individual preferences and also complement a company's business letterhead, the type styles can be further enhanced by the use of colored typewriter ribbons prepared to harmonize with letterhead colors. Special keyboard arrangements are also available.

Circle No. 95 on Inquiry Card-Page 17

Byron Weston, Dalton, Mass., manufacturers of paper, have recently issued a pocket-size compendium of paper facts and figures. Known as the "Byron Weston Red Book", it lists important reference data on stock sizes, weights and colors for all Weston papers and related specialties under the Weston watermark. Copies are available on request from the Byron Weston Sales Department, Dalton, Mass.

Circle No. 96 on Inquiry Card-Page 17

A new office machine stand, with clips to hold office machine pads, has been added to the de luxe line of machine stands made by Maso Steel Products, Chicago. Designated Model No. 2000 R, it is of all metal con-

struction and has clips, adjustable up to 16½" x 18" to hold the machine pads. A "Power" foot pedal raises or lowers the stand. The top is 18½" x 19¾", the drop leaf, for either or both sides, 18½" x 14½", and the height is either 27" or 35½". Its shipping weight is 36 lbs.

Circle No. 97 on Inquiry Card-Page 17



An improved version of an electric typewriter for marking metal name plates has been announced by Defiance Machine & Tool Co., Inc., St. Louis 10. Called the "Automark", it has a redesigned table feed mechanism with automatic shifting; line and margin space; precision type wheels and an increase in the number of type faces available.

Circle No. 93 on Inquiry Card-Page 17





Office Planning Saves Money

Years of research and consultation with exports in the various fields of office planning have contributed to the present function of the Certified Office Planning Service of the Wood Office Furniture Institute.

Studies of office layout have demonstrated that modernization of a disorganized offce can boost production by 10 to 30 per cent. In an office employing 15 persons, the minimum increase of 10 per cent means an average saving of \$3,750 a year. This estimate has been provided by many surveys undertaken by business in general as well as the various governmental departments.

An initial step in effecting savings is the straightening out of the office's "work-flow" pattern. This may be an order, an employment applica-

tion or a job ticket.

In an ideal office, the workflow is a straight line, meaning fewer delays and man-hours lost in trying to locate records or correspondence.

Part of the aid, provided by the Certified Office Planning Service consists of a portable, three-dimensional scale model kit. A cork board, marked off in ½" squares, is used with miniature plastic furniture models to "plan" the office layout.

A further service lies in the field of illumination. One study in the field of lighting involved the Bureau of Internal Revenue. A card-punch office was operated at an annual saving of \$13,000 because of lighting improvements. The recommended lighting change had cost only \$6,000.

A similar change in the Census Bureau raised production by 3.5 per

cent in one office.

Service on the selection of sound and practical color schemes is also an asset. Psychological studies have shown that the use of color in a business office can affect the mental attitudes and production of personnel. Besides being an emotional factor, color schemes should be worked in relation to their diffusion of light.

Studies have shown, for example, that white reflects 80 to 90 per cent; buff, 60 to 70; light gray, 50 to 60; dark green, 7 to 20, and brown, 5

to 15 per cent.

This is as important in the selection of desk and furniture color as in the painting of the office walls. A proper toned desk does much to cushion the visual shock between such extremes as a black typewriter and white paper, thus avoiding eye

(Please turn to page 182)



vVx is visible. U.S.E.'s improved synthetic-type seal flap gum has the natural sheen and color which people have learned to look for. They know immediately that there's gum on the flap.

And they find these additional advantages: vVx lies flat; does not curl, and has high resistance to humidity and blocking. It provides instant tack with normal moisture, and makes a positive, permanent seal. It has the U.S.E. neutral taste.

vVx is a product of U.S.E.'s Envelope Research Laboratories, and is now provided on all stock commercial and official sizes of White Woves and Bonds.

Enjoy the many advantages of vVx SEAL FLAP GUM - you'll see the difference immediately.



(Continued from page 181)

fatigue.

Additional assistance is given on means of reducing office noises. Aetna Life Insurance Co., found, for instance, that typists' errors dropped 29 per cent and machine operators' mistakes by 52 per cent in acoustically treated offices. Further, along these lines, Colgate University determined that a typist used 19 per cent more calories of bodily energy in a noisy office than in a quiet one.

Advice on all matters of this type is readily available through the service of the Wood Office Furniture

Institute.

Historical Typewriters In Traveling Exhibition

The "wonderful writing machine" of 1873, the world's first commercial typewriter will be on tour well into 1955.

Featured in the Remington Rand sponsored typewriter display of "Industrial Progress USA", the annual traveling exhibition of the Henry Ford Museum and Greenfield Village, Dearborn, Mich., the gaunt Remington Model One stands side-by-side with the Remington Electric of 1925.

It is primarily to the genius and perseverance of the American inventor, Christopher Latham Sholes, that the world owes the machine which revolutionized the science of communication. Before hitting on a practical design in 1872, Sholes and two assistants spent seven years in his Milwaukee shop building model after model. He brought the end result to E. Remington & Sons, sewing machine and farm equipment manufacturers in Mohawk Valley, N. Y., who made a few mechanical modifications and went into production the following year.

Nonetheless, Sholes was cautious in his predictions. He said that his machine might enjoy a brief popularity and then "like any other novelty . . . be thrown aside." However, he lived to see his fears allayed. Shortly before his death, in 1890, by which time the typewriter had gained wide acceptance, the old inventor was able to say with pride, "I builded better than I knew, and the world will benefit by it."

Developments which have long since become standard, were gradual. The Remington Model One printed in capital letters and could be used by only a few skilled operators. The shift key, which made the typewriter adjustable between upper and lower case print, did not make its appearance until the Remington Model Two, five years later in 1878. And, it was another decade before the idea of typing with all ten fingers, the "touch system," was taken seriously.

Perhaps slowest of all to evolve was the notion that women might master the machine and, through it, make a substantial contribution to

the business world.

admission-free exhibition, which displays the work of twenty major industrial products in historical perspective, will visit 38 U.S. cities in the course of its year-long

An overall attendance of more than a million is expected.

Inquiry Card-Page 17



The Present Future!

You'll be mighty popular when you tie Weldon Roberts Jet Erasers on your office Christmas tree and put them on your tree and in your Christmas stockings at home. Weldon Roberts Erasers will correct the mistakes people always make in writing Christmas cards - and mistakes they make in all kinds of writing all year 'round.

Ask your stationer now to show you Weldon Roberts Erasers especially suited for correcting writing mis-takes made by office workers, artists, draftsmen. You can order Weldon Roberts Jet Erasers with your imprint NOW, in quantities, from your dealer or direct from us.

■ JET ERASER Convenient cylindrical stick eraser in attractive transparent plastic holder. Tip unscrews so eraser can be moved outward. Red rubber for pencil erasing, gray rubber for ink. Pocket clip for general use. Brush whisk style for typists. Refills. Tops for typing, accounting, drafting.

WELDON ROBERTS RUBBER CO.

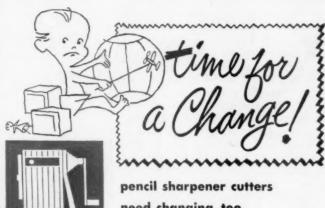
365 Sixth Avenue Newark 7, N. J.

Weldon Roberts Grapers

Correct Mistakes in Any Language

World's Foremost Eraser Specialists

For More Information Circle No. 309 on Inquiry Card-Page 17



need changing, too.

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THESE FEATURES WILL SAVE YOU TIME AND SAVE YOUR TOOLS:

Hand Detachable—one quarter turn by hand, a twist of the wrist engages or releases cutter.

Balanced Drive—double lugs on cutter engage double abutments in holder; double aligning bearings for rigidity.

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Other Continental Products: Standard and Special Cutting Tools, Broaches and Broach Fixtures.

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AMONG THE ASSOCIATIONS

RELLES.

New Jersey Association Organized

A new NAPA chapter was born on October 6. The blessed event took place at the Robert Treat Hotel in Newark, N. J. Some 110 New Jersey PA's were present and agreed that there was a need for a New Jersey Purchasing Agents Association. A sufficient number signed applications so that a petition for organization of the new association was presented at the 8th District Conference.

The idea for a New Jersey group was hatched by a group of six New Jersey PA's who felt that many purchasing people in their home state would benefit from membership in NAPA were a local association formed. Upon investigating the potential of the proposed organization, they discovered that there were at least 500 possible members who do not presently belong to any chapter of NAPA. More than 200 have already expressed interest in the new association.

Principal speaker at the organization meeting was William J. Orchard, director of the Wallace & Tiernan Co. The well known New Jersey business executive and civic

leader spoke on "Management's Thinking on the Desirability of Membership in Professional Organizations." Mr. Orchard pointed out that, although it is sometimes thought of as a corridor state between New York and Philadelphia, New Jersey is one of the most heavily industrialized states in the nation with a working force of more than 2,000,000. He urged the audience to join together both to help themselves do a better job of buying and to promote the general welfare of the purchasing profession.

Since practically no one in the audience was a member of NAPA, the six boosters of the new association explained the general aims and principles of NAPA, what the member can expect to gain from belonging to such an organization, and what had to be done to get the proposed association started. The sparkplugging six include: Frederick C. Esser, Westinghouse Lamp Division, Bloomfield; Lawrence R. Gardner, Egyptian Lacquer Mfg. Co., S. Kearny; William J. Gibson, Eastwood-Neally Corp., Belleville; Irene Gordon, Wallace & Tiernan



Featured speaker of the New Jersey meeting, William J. Orchard.

Co., Belleville; Walter M. Hoffman, American Oil Supply Co., Newark; and Charles G. Sherwood, Federal Telephone & Radio Co., Nutley.

During the association's infancy, expenses will be held to an absolute minimum so as to keep dues down to \$25:00 per year. It was emphasized at the meeting that future policies including programs, meeting place, dues and finances, etc. are determined entirely by the membership within the general framework of NAPA. Current plans call for election of permanent offi-

(Please turn to page 186)





First officers of the New Jersey Association are, left to right: Frederick C. Esser, president; William J. Gibson, first vice president; Irene Gordon, treasurer; Charles G. Sherwood, secretary; Walter M. Hoffman, national director; and Lawrence R. Gardner, second vice president. Over 100 potential members turned out for the organization meeting of the New Jersey Purchasing Agents Association in Newark.

BATTERY MAINTENANCE TIP #2

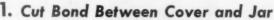
from the GOULD Plus-Performance Plan

BEST WAY TO REMOVE ELEMENT FROM JAR

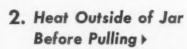
When accidental damage requires installing an element in a new jar, the element complete with cover must be removed. The Gould Plus-Performance Plan shows you how this can be accomplished easily and with safety.







Cut the compound from around the top of jar, using warm compound knife, keeping it very close to inside of jar wall.



To make sure there is no hardened compound to restrain the pulling of the element, heat the outside top of all four sides of the jar with a blow torch. Warm thoroughly, but do not melt or burn the jar.



3. Pull Element

Using Gould Jar Hold Down Clips (Part No. 2-1445) and Gould Cell Puller (Part No. 77061) as shown here, lift element halfway out of jar. Allow element to drain for minute or two, then remove and place immediately in new jar or lay it on flat insulated surface such as wood, for servicing.



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(Continued from page 184)

cers after the association's application for official NAPA status is approved. Temporary officers were elected, however, to serve until the application is approved and to continue work on the tremendous job of getting the new organization firmly established.

The next meeting of the New Jersey group is planned for November 9. Stuart Heinritz, editor of Purchasing, will be the principal speaker.

Civil Defense Discussed at Denver Meeting

President Woodward called the September meeting of the Purchasing Agents Association of Denver to order and spoke briefly on the value of association membership. Ed Olander then called to the attention of members the evening class in purchasing at the Opportunity School. The featured speaker, H. W. Parsons, was introduced by Eddy Saulsberry. Mr. Parsons spoke on civil defense. He discussed risk of attack, probable weapons, and the likely targets in the Denver area. PA's left the meeting convinced that the problem of civil defense is a serious one requiring the cooperation of many to work effectively.

New members of the group include Bud Manning of Climax Molybdenum and M. P. McComas of Ideal Cement Co.

Eastern Indiana Association

The executive committee of the Purchasing Agents Association of Eastern Indiana announces the following committee chairmen appointed by President David Hoff of Hoff Sheet Metal Works, Inc.: Program committee, R. E. Oliver, National Automatic Tool Co.; educational committee, P. G. Nolte, National Automatic Tool Co., standardization committee, G. Chestnut, Hoff Sheet Metal Works, Inc.; publicity committee, D. L. Collins, Aluminum Company of America; membership committee, C. W. Senkbiel, Moto-Mower Co.

The first autumn meeting was held Sept. 16 at Forest Hills Country club. J. W. Mihalic, Jr., general manager of the Crosley Bendix Home Appliance division of Avco Manufacturing Company, and N. M. Forsythe, general manager of National Automatic Tool Company, told the members "What Management Expects of Purchasing."

Now . . . 100,000,000 motors back your judgment when you specify "G.E."

Get the benefits of

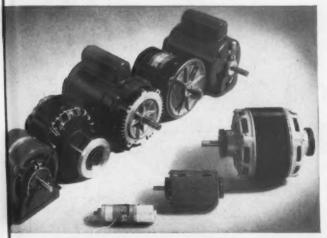
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Recently—at one of the seven General Electric fractional-hp motor factories—the 100,000,000th G-E fhp motor moved off the production line on its way to a G-E customer. This production milestone climaxes 52 years of small-motor leadership—years in which G-E engineers have established a long list of "firsts" in motor history.

Today and in the future you can expect continued G-E leadership in small motors. When you specify "G.E."—or call in G-E engineers on small-motor applications—you'll benefit from the unmatched experience and unequalled facilities built up during this record production. General Electric Company, Schenectady 5, N. Y.



LEADING DESIGNS—Today's G-E fhp motors—climaxing 52 years of leadership—are industry's most advanced; feature modern materials, compact size, superior performance.



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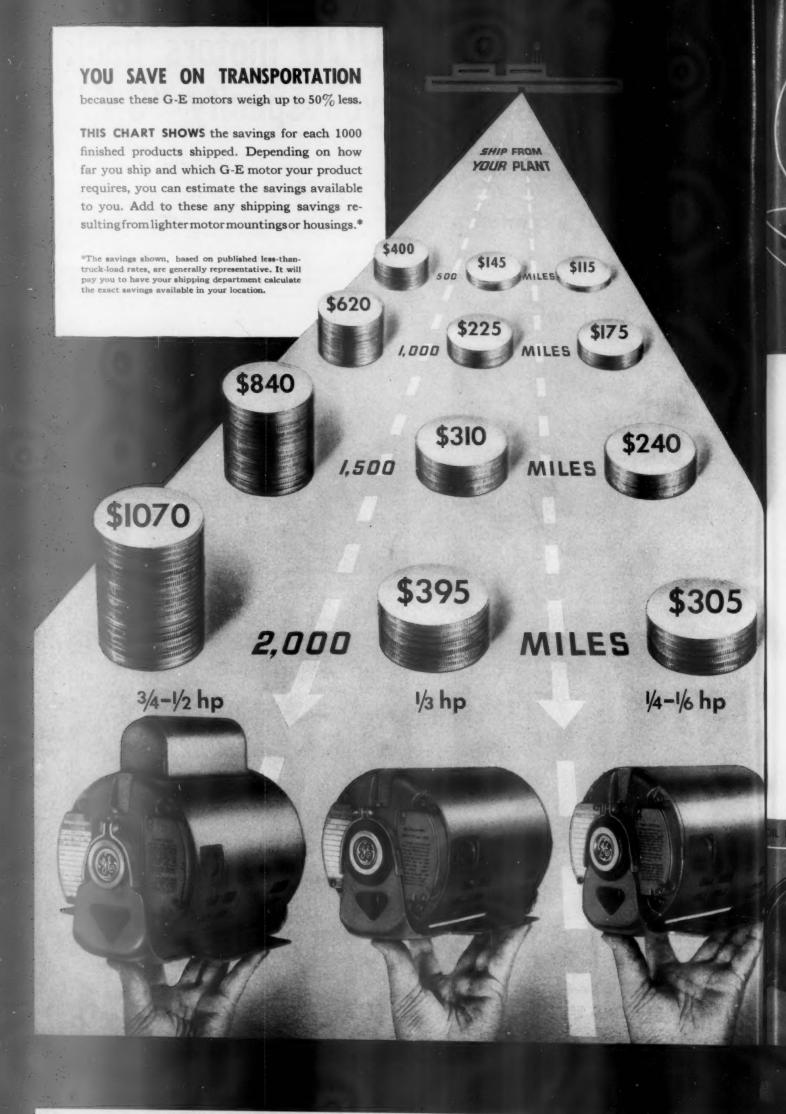
CONTROLLED QUALITY—G-E production men use specially developed methods and equipment—plus hundreds of quality-control checks—to guard G.E.'s reputation for dependability and long life.

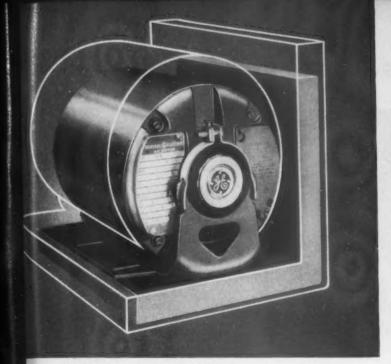
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YOU SAVE ON MATERIAL COSTS because new G-E motors—as much as 50 percent lighter, 40 percent smaller-permit you to design smaller and lighter motor mountings and housings.



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New smaller, lighter G-E motors give you 3 important cost savings

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out of motor handling, speed installation.

You'll find these new G-E motors solve design problems, too: improved insulation and a new ventilation system permit application where adverse conditions exist . . . add to motor life in any location. A better lubrication system and thrust-bearing design mean that these new motors will operate at any angle.

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GENERAL (SE) ELECTRIC











G. E. Sokolsky Addresses Rochester Association



Featured speaker at the opening meeting of 1954-5 season of the Purchasing Agents Association of Rochester was George E. Sokolsky. Some 150 members and guests heard the nationally syndicated columnist urge a return to the basic thinking of our forefathers. Attacking the trend toward government intervention, Mr. Sokolsky proposed that we "go back into the lost channel from which we moved in the days of the depression."

Dayton Host to Sixth District Council Meet

Guests at the October 22nd meeting of the Purchasing Agents Association of Dayton included national directors and alternates from the fourteen other associations in the Sixth District. Speaker at the meeting was Mr. S. A. Dodge, immediate past president of Lions International. The Sixth District Council Meeting, presided over by Vice President Henry Ruf, got under way on Saturday, October 23, with a breakfast meeting.

New members of the Dayton Association include: James D. Whalen, Rike Kumler Co.; Ned A. Lewis, Dayton Pump & Mfg. Co.; Robert E. Hoefflin, Gummed Products Co.; Brig. General William P. Farnsworth, Air Force Air Materiel Command; Albert Aselage, Wagner Manufacturing Co.; Thomas J. Macaulay, Buckeye Boiler Co.; John R. Reimuller, Buckeye Molding Co.; and W. E. Tisdall, Air Force Air Materiel Command.

Heinritz Guest Speaker At S. Connecticut Meeting

1 1 1

The Southern Connecticut Purchasing Association held its regular monthly meeting Tuesday, October 12, at Chimney Corners Inn, Long Ridge Road, Stamford, Conn.

The feature speaker was Stuart Heinritz, editor of Purchasing Magazine. He discussed "Changing Business of Buying".

James A. Miller, Machlett Laboratories, Springdale, Conn., president of the Southern Connecticut Purchasing Association presided and Edwin W. Cunningham of Conde Nast Publications, Inc., Greenwich, Conn., chairman of the program committee, introduced the speaker.

Ft. Wayne Assn Meets

George E. Pratt, assistant to the general traffic manager of the Essex Wire Corp. was principal speaker at the opening meeting of the Fort Wayne Association of Purchasing Agents. The afternoon and evening event was held at the Kendallville Country Club. Tee-off time for golf was 2 o'clock. Mr. Pratt spoke following a dinner in the club house. His topic was "FOB Points and What They Mean to You."

Syracuse PA's Tour Ansco Plant

1 1 1

Purchasing Agents Association of Syracuse and Central New York started off its fall season with an all day program. In the morning there was a tour of the Ansco Division of the General Aniline and Film Corporation. Luncheon was held at Ansco's Recreation Center. The afternoon started with a tour of the Ozalid Products Division. Then there was golf at the Binghamton Country Club. The day's activities ended with dinner and a talk by an executive of General Aniline and Film on his company's operations.

Purchasing Agents of Scranton to Organize

Groundwork for organization of the Purchasing Agents Association of Scranton was laid at a meeting of regional purchasing agents in the Chamber of Commerce Building.

John V. Hennigan, purchasing agent of the Daystrom Instrument Division of Daystrom, Inc., was named temporary chairman. Appointed to assist Mr. Hennigan with organization plans are the following committee members: Ralph J. Lomma, Maxson Corporation; Ralph A. Lewis, International Correspondence Schools, and Jack G. Brandmore, General Electric Company.

Purchasing agents from Honesdale to Wilkes-Barre will be eligible for membership and Mr. Hennigan said the organization intends to solicit all firms in this area to register their purchasing agents for membership.

Mr. Hennigan said objectives of the association "are to foster and promote interchange of ideas and cooperation among its members; to develop and apply efficient purchasing methods and practices; to collect and disseminate information of benefit to its members regarding fundamental marketing, production and manufacturing practices, various products and their uses, and sources of supply and distribution; to correct trade abuses, to encourage the institution of courses in high schools and colleges for practical training of purchasing agents, and to strive by all legitimate means to advance the purchasing profession."





SOUTHEASTERN Massachusetts now has its own purchasing agents' association. Shown here are officers of the new group: left to right, Walter Martin, Morse Twist Drill Co., treasurer; William Roemer, Acushnet Process Co., president; Warren Ide, Continental Screw Company, vice-president; Louis Souza, Goodyear Rubber Company, secretary.

Standardization Featured at Washington Meet

The first standardization meeting of the Purchasing Agents Association of Washington was held on September 23 at the Boeing Aircraft Co. Following dinner in Boeing's cafeteria, the group toured the factory to see standardization at work. Featured speaker was John Cramer, chief of standards of Boeing. PA's agreed that Ferd Bondy, William P. Murdock, and Arthur Olson of Boeing did an able job in arranging the tour and the meeting.

there is an inadequate supply of oil or coal. The AEC has a "Five Year Plan" of its own, according to Mr. Young, aimed at developing economic electric power from nuclear fuel as soon as possible. Research is being conducted on five different types of reactors.

So far an estimated 14 billion dollars has already been spent on atomic research. This expense is justified if it produces a fuel where the ultimate savings could be many times greater.

S. E. Massachusetts Ass'n Opens Fall Meeting Program

The recently formed Purchasing Agents Association of Southeastern Massachusetts held its first meeting of the fall season at the Wamsutta Club, New Bedford, on Wednesday evening, October 6.

Feature of the program was the color film "Industrial Purchasing." Guest speakers, who gave the background of the film and highlighted the important message it contains, were A. M. Morse, Jr., vice-president of Conover-Mast Publications, and Paul V. Farrell, managing editor of Purchasing.

Dallas Program Features Steelmaking Movie

The wonders of one of the world's great industries, steel, were described to members of the Purchasing Agents Association of Dallas at the September meeting. On hand to show the Technicolor movie, "Steel, Man's Servant," was Dan Barr of U. S. Steel's Oil Well Supply Division.

Dallas membership now totals 218. New members are: John H. Cleveland Jr., Paddock of Texas; Howard T. Edwards, Lone Star Gas Co.; Joseph M. Fagin, Seaboard Oil Co.; Edward H. Gore, Security Engineering; Robert L. Perrenot, Texas Instruments Inc.; and D. H. Walkup, American Supply Co.

AEC Official Speaks

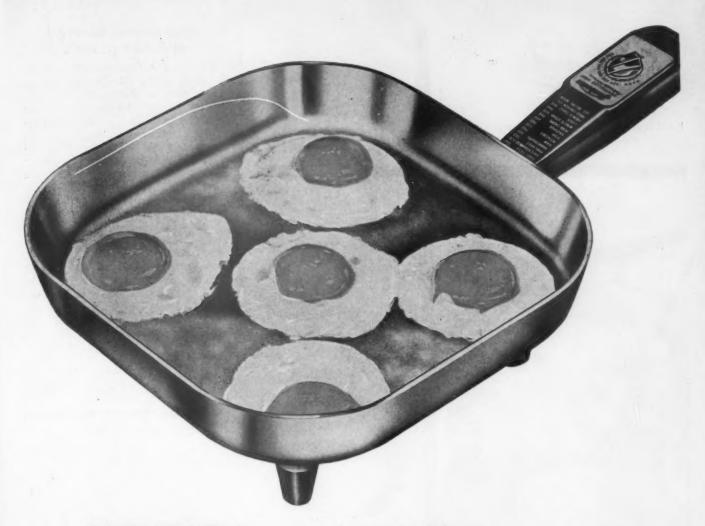
Guest speaker at a recent meeting of the Purchasing Agents Association of Baltimore was J. William Young of the Division of Reactor Development of the Atomic Energy Commission. Reviewing developments in the field of atomic energy, he disclosed that more than a dozen Baltimore firms were now using radioactive materials for various purposes. Despite the growing use of radioactive isotopes, he said that wide use of atomic energy for electric power generation is five to fifteen years and "several hundred million dollars" in the future.

Mr. Young said, "It is the hope of the AEC to build a reactor (a device for using atomic energy) that will produce power cheaply enough to induce private investment of funds sufficient to carry on the work." Atomic power would be especially useful in countries where

L. A. Association Has First Meeting



New officers of the Purchasing Agents' Association of Los Angeles are pictured at the first dinner meeting held on September 9, 1954 at the Los Angeles Elks Club. They are, left to right: E. Benton Long, second vice-president, United States Lime Products; S. H. Bellue, secretary, Hughes Aircraft Company; William E. Hayes, junior director, Consolidated Engineering Corporation; David L. Wilt, president, University of California; John R. Hairgrove, first vice president, Braun Corporation; Frank T. Henry, senior director, Arden Farms Company; and William T. Reynolds, national director, Los Angeles Transit Lines.



TRENTWELD stainless tubing



TRENTWELD stainless tubing in handle of Sunbeam frypan

chosen for connecting unit of new **Sunbeam** automatic frypan

Two six-inch lengths of TRENTWELD stainless tubing form an important element of this popular new automatic frypan. One tube carries the electrical connection to the heating element embedded in the pan, and the other carries the dial connections to the thermostatic control. They make a tight, waterproof seal . . . and add strength to the bakelite handle.

You'll find more and more manufacturers specifying TRENTWELD for products ranging from frypans to heat exchangers. That's because you just can't buy better tubing than TRENTWELD, no matter what the application. TRENTWELD stainless and high-alloy tubing is a product of tube mill specialists.

And when it comes to sizes and finishes, Trent provides the widest range in the industry . . . standard sizes from $\frac{1}{8}$ " to 40" O.D. — larger sizes on special order. Next time you need tubing be sure and make it TRENTWELD.



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STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

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FIRST in earthmoving equipment-chooses.







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FIRST IN HOSE CLAMPS

☆ no snag

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Fall Opening Meeting of Pittsburgh Ass'n

First featured speaker of the 1954-5 season of the Purchasing Agents Association of Pittsburgh was Mr. John P. Roche. Mr. Roche is executive vice president of the Heppenstall Co.; his topic was "Pittsburgh, Home and Abroad." Since the interests of members naturally center around the Pittsburgh area, his talk was of considerable interest.

Members will be able to broaden their purchasing knowledge with a course sponsored by the Association's Education Committee headed by C. Warner McVicar. Commencing February 14, Basic Purchasing Policies and Procedures will be taught at the University of Pittsburgh. Enrollment in this 2 hour credit university course will be limited to members and associate members of the Pittsburgh Association.

Top Sales Manager Addresses N. Y. Ass'n

Purchasing Agents Association of New York got its 1954-5 season off to a good start with a first class program. Featured speaker was Fen K. Doscher, vice president—sales, Lily Tulip Cup Corporation. Mr. Doscher's subject was "Purchasing —Sales Teamwork." He said that the salesman must realize, "If you would sell to John Smith what John Smith buys, you must first see the product through John Smith's eyes."

Mr. Doscher had three recommendations to PA's on how to help salesmen do a better job for them. First, the PA must realize that the salesman only has an average of $2\frac{1}{2}$ hours per day at the point of payoff -the buyer's office. The buyer can help keep down selling costs by not keeping the salesman waiting too long, etc. Second, the buyer can help the salesman do a more intelligent job by being cooperative in discussing the company's needs with him. Third, no salesman should make a call unless he actually has something to contribute to the buyer. A seasoned buyer can frequently help a green salesman learn this basic fact of successful selling.

Prior to the dinner meeting, there was forum on a subject PA's will have to know more and more about—atomic energy. Warren H. Donnelly, deputy director of the contracts division in the New York office of the Atomic Energy Commis-

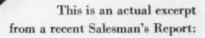
(Please turn to page 198)

Here's evidence of the superior flashback* resistance built into

PREST-O-WELD

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BLOWPIPES



"... The superintendent wanted to know what the Prest-O-Weld W-122 blowpipe's character istics were concerning flashback. I told him to go ahead and try it. He then lit a standard welding head and placed it against a block of wood six inches square. It bit its way into the block two inches deep before the tip of the welding head began to melt off. BUT ALL THE WHILE IT KEPT BURNING WITH NO FLASHBACK...."

We don't guarantee that every blowpipe can be maltreated this way with the same results. But that's the simple truth about the flame stability and flashback resistance of the Prest-O-Weld W-122 Blowpipe. Your present welding and heating work may not demand the limits of its outstanding performance. Still the reserve that's there—if and when you need it—is your continued assurance of steady, dependable operation and your safeguard against repair bills.

See for yourself the many additional features that put the PREST-O-WELD W-122 Blowpipe so far ahead of the field in economy, ease of operation, and low cost maintenance. Enjoy tomorrow's standards today. Ask your LINDE jobber for a demonstration. Or write to LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 E. 42nd Street, New York, N. Y.

Get it from your LINDE jobber



"A flashback occurs
when the flame disappears
from the end of the tip
and the gases burn
within the torch or
beyond the torch in the
hose, usually with a
shrill, hissing sound."

—Definition from
THE WELDING ENCYCLOPEDIA,
Thirteenth Edition,

The terms "Linde" and "Prest-O-Weld" are registered trade-marks of Union Carbide and Carbon Corporation.



THE MOST FLEXIBLE of the standard six-strand hoisting ropes is needed for this ladle crane—that's Tiger Brand 6 x 43 Filler Wire Rope. A tough independent wire rope core resists heat and adds strength.



TIGER BRAND FITS THE JOB!

WHETHER YOU NEED a wire rope for a ladle crane, a yard crane, a skip hoist, a winch, a sling, a guy line, or any other job, you will find a Tiger Brand Wire Rope that's especially suited to the job.

Both the inside and outside of every Tiger Brand Wire Rope is made for a particular type of service. Take a ladle crane for example. Its hoist rope slaves away over a white hot steel furnace day after day. A strong, tough, heat resistant core is needed. For that reason, Tiger Brand Ropes for this service are built with independent wire rope cores.

These ropes must be flexible too, so the strands are formed from a large number of wires. This enables them to flex and bend easily, repeatedly, without danger of fatigue failure.

Other ropes need completely different properties. Quite often, a fiber core is preferable to any other type. Sometimes the outside wires must be unusually heavy gauge to withstand abrasion. And then there's the matter of lay, and preforming, and the grade of steel. Every rope job is special. If you are ever in doubt about which rope is best for a job, about how much service can be expected from a rope, about how to increase service, call in a Tiger Brand Wire Rope Engineer—he knows the answer. Just call your Tiger Brand Distributor.

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Excellay Preformed

UNITED STATES STEEL

HARRISBURG CYLINDERS FOR HIGH-PRESSURE GASES



Buy with CONFIDENCE!

Yes, buy with confidence when you need cylinders for the storage or transportation of fixed, liquid, and medical gases in your plant...and buy from Harrisburg Steel, pioneer and world's largest manufacturer of seamless steel high-pressure gas cylinders made to I.C.C. Specifications.

Harrisburg Steel offers you the choice of a complete line, a complete range of sizes and capacities, in both domestic and export types...from 14 to 400 cubic feet. Orders from a few dozen to several thousand cylinders all receive prompt attention. Write for our Cylinder Catalog and current prices.

HSC-PA-1/54



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(Continued from page 194)

sion, was the speaker. His topic was "What Should the P. A. Know Now About Atomic Energy."

The Education Committee headed by Walter Cummin has started its fall course in "Fundamentals and Techniques of Purchasing." Serving as moderators at the Monday night sessions are Walter E. Cummin, Carl T. DePrima, William C. Gretsch, John C. Lynch, and Donald H. Lyons. The course should be extremely useful to buyers and assistants who can benefit from the practical advice and experience of outstanding men in the purchasing profession.

There was a large turnout of members and guests for the Association's plant visit to U. S. Steel's Fairless Works at Fairless, Pa. on October 19. Members who made the trip report that it was both extremely interesting and educational. The Fairless Works is U. S. Steel's newest facility and includes the latest developments in efficient steelmaking.

B. C. Kick-off Meeting

1 1 1

Heavy attendance was a feature of the first meeting of the 1954-5 season of the Purchasing Agents Association of British Columbia. President Bob Nichols and his executive committee have been working during the summer on programs and a bang-up year is in prospect.

The guest speaker, Dr. D. F. Kidd, a prominent mining geologist, was introduced by Program Chairman Bill Gourlay. Dr. Kidd's topic was "Mining in British Columbia." Mixing a droll sense of humor with pertinent facts, he pointed the importance of the mining industry not only to the province but to Canada as a whole.

The September and October educational meetings dealt with effective letter writing. Speaker was Ralph Kluckner, supervisor of training for the B. C. Electric Co. He showed three films, "Relax, Be Natural and Just Talk," "Shave Off Those Whiskers," and "Don't Be A Goozler." The film humorously and constructively pointed up many faults not unusual in letter writing.

There was record breaking attendance for a tour of operations of the Dietrich-Collins Equipment Co. in Vancouver on Thursday, September 23. After an interesting tour of the various buildings and shops, PA's were taken into the yard to see practical demonstrations of trucks, air compressors, and loading equipment.



Union Oil lube engineer on the job ...YOUR job

CHANCES are you won't reach this man at his office first time you call. That's because a Union Oil lube engineer spends only a fraction of his working time behind a desk.

Most of the time Union's Industrial Sales and Lubrication Engineers are in the field doing the jobs they know and like best... satisfying the lubrication, maintenance and fuel requirements of their various industrial customers. Technical training and broad experience qualifies them to recommend the specific petroleum products which best serve each industry.

Why not capitalize on the knowledge and experience of Union's industrial experts? They know the problems of your industry almost as well as you, yourself. You can arrange to have them make a complete lubrication survey of your operations without cost or obligation. Just call your nearest Union Oil Company representative and ask to have one of these specialists take the measure of *your* job.



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For More Information Circle No. 323 on Inquiry Card-Page 17

NOVEMBER, 1954

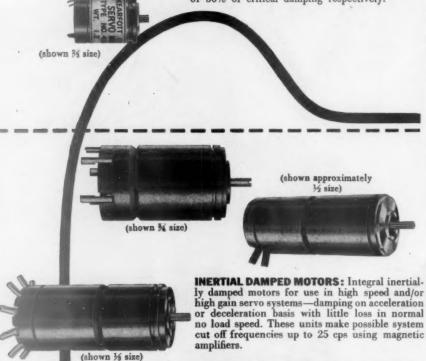
There is no one "cure all" for system instability. The desired stability of a servo loop is attained through the proper selection of components that satisfy the various conditions under which the loop will operate. Kearfott offers four basic motors and combinations for providing system stability. All feature high speed of response; low inertia and high stall torque.

SYSTEM STABIL

SERVO MOTORS: Servo motors with high torque to inertia characteristics possessing (built-in) inherent damping ranging in size from ¼ to 1¾ diameter are available. Low speed, low power motors for use in simple instrument servos where high damping and/or low time constant is required can also be provided.

VISCOUS DAMPED SERVO MOTORS: Provide integral viscous damping for simple instrument Servos. Any degree of damping can be provided.

These units reduce no load speed of standard motors to 50% or 75% of normal, providing 70% or 50% of critical damping respectively.



ly damped motors for use in high speed and/or high gain servo systems—damping on acceleration or deceleration basis with little loss in normal no load speed. These units make possible system cut off frequencies up to 25 cps using magnetic

SERVO MOTOR TACHOMETER GENERATORS:

For system stabilization by voltage feedback from an integral tachometer generator. May be obtained as damping generators for use in simple rate servos or as rate damping generators for use in very high gain systems. The latter feature high linearity, high output and maximum output to fundamental null ratios.

These servo motors are suitable for most exacting requirements. Write today for descriptive bulletin giving data of components of interest to you.

KEARFOTT COMPONENTS INCLUDE:

Gyros, Servo Motors, Synchros, Servo and Magnetic Amplifiers, Tachometer Generators, Her-metic Rotary Seals, Aircraft Navigational Systems, and other high accuracy mechanical, electrical and electronic components.



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Westinghouse Purchasing and Traffic Men Speak to M.P.A.C.

A regular meeting of the Metropolitan Purchasers Assistants Club was held at the Midston House, New York City, on September 14. Featured speakers were A. J. Luhks, traffic manager of Westinghouse Electric Corporation, Elevator Division, and F. C. Esser, purchasing agent for the Westinghouse Lamp Division. Mr. Luhks spoke on "Traffic in Relation to Purchasing", Mr. Esser on "Basic Purchasing."

Honorary life memberships in the club were presented to J. H. Leonard, secretary of the Purchasing Agents Association of New York; Stuart F. Heinritz, editor, and Paul V. Farrell, managing editor of Pur-CHASING. In making the presentations, President Robert H. Miller said they represented the appreciation of the club for the assistance and encouragement it had received for many years from the New York Association and the magazine.

H. E. Luedicke Addresses R. I. Association

1 1 1

The 1954-55 season of the Rhode Island Purchasing Agents Association got off to a good start on September 27. Featured speaker was Dr. Heinz E. Luedicke, editor of the "Journal of Commerce." Dr. Lue-dicke is a well known expert on economic problems and his message was of exceptional interest to members. Rhode Island buyers and PA's will have a chance to brush up on their purchasing principles and practices this fall. Brown University is conducting a class in purchasing which meets at 7:30 P. M. every Wednesday. The first class was on September 29th. The instructor is D. Francis Finn, purchasing agent, Brown University.

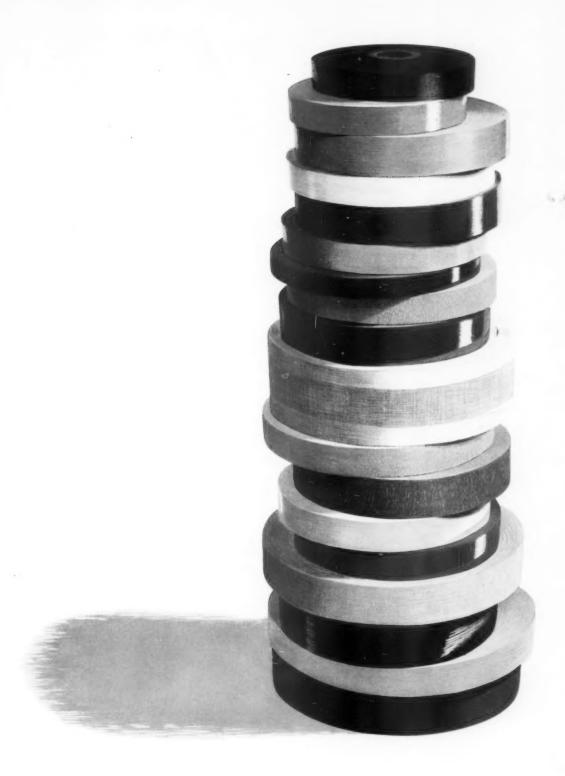
Howard Ahl Addresses Connecticut Assn

1 1 1

Some 175 members turned out for the opening fall meeting of the Purchasing Agents Association of Connecticut. Featured speaker was G. W. Howard Ahl, president of NAP*. and general purchasing agent of Philip Morris. He was introduced by District Vice President Carl A. Tootill of the Van Norman Co., Springfield, Mass.

Prior to the meeting, members took advantage of a special tour of the submarine base at Groton.

> For More Information Circle No. 325 on Inquiry Card—Page 17→ PURCHASING



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For More Information Circle No. 328 on Inquiry Card-Page 17

ROLLER CHAINS AND SPROCKETS

Canadian Purchasing Conference "New Look" Highly Successful

What research can do in relation to purchasing in a world affected by scientific progress was the theme of the 29th Canadian Purchasing Agents' Conference. Held September 23-25 at Montreal's Sheraton-Mt. Royal Hotel, it departed from the pattern of previous conferences held in Canada and the United States. "What purchasing agents want to know is what lies 'over the hill,' realizing that knowledge of scientific research can help acquaint them with future trends, said Program Chairman J. S. M. Hayes. The "new look" conference drew an attendance of more than 600 and thus the judgment of the program committee was confirmed. With public works spending becoming of increasing importance to business, the opening luncheon was of wide interest. The Hon. R. H. Winters, Minister of Public Works, spoke on "Federal Public Works in Economy." Prior to Canada's luncheon, delegates had heard an outline of "Laboratory Research as an Aid to Purchasing" by Harry Thomasson of Canadian Westinghouse Company Ltd. Continuing the conference theme, John Hay, assistant vice president, Bell Telephone Company of Canada, discussed research in the telephone industry.

The many amazing new developments in the plastics field were then described by Frank G. Rice, manager, Plastics & Chemicals Department, DuPont Co. of Canada Ltd. The tremendous potentialities of electronics weren't overlooked either. R. H. Taplin of Canadian Marconi Co. discussed "Industrial Electronics"

The session on Friday, September 24, started off with a stimulating purchasing panel on "Stepping Stones to Tomorrow." Leading off was John Crawford of the Sun Life Assurance Co. of Canada with a talk on "Privilege of Purchasing." The standardization and education committees then presented papers on "Practice of Self Improvement" and "The Profits of Standardization." At luncheon, the featured speaker was N. A. P. A. President G. W Howard Ahl.

In the afternoon, J. R. Law of C. I. L's Paint and Varnish Division spoke on "Recent Developments in Paints and Protective Coatings." Recent developments in oils and lubricants were then ably discussed by L. D. New, National Research Council, Ottawa.

(Please turn to page 208)

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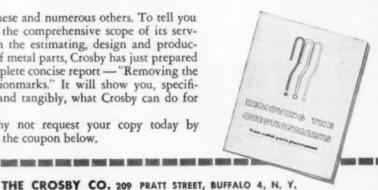


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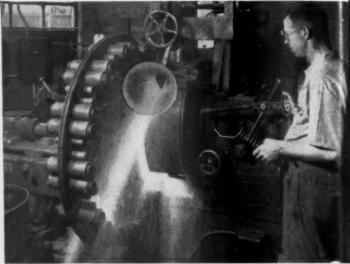
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"High above competition for output and grinding quality."

"Gave 20% longer service life."

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"Simplicated" Case Histories

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Design of new portable stove submitted to Titchener called for die-cast burner grate. Tool cost for die casting quoted at \$3,000 - estimated unit cost, 30¢. Titchener designed simple wire grate. Tool cost, \$235; unit cost, 25¢. Savings on first order for 25M - \$4,015.



Wire Design Reduces Weight 75%

The sheet steel motor mount shown at left was replaced by the Titch-ener-designed welded wire-and-strip assembly at right. Result: Weight reduced 75%. Costs reduced. Availability of material improved. Appearance much improved.

That's the sole objective of the Titchener Test: To see whether a product-yours, for example—can be made simpler... lighter . . . cheaper.

Here's How The TEST Works

Say the design of your product includes a casting or forging, stamping, tubing or sheet steel part. You send prints or a sample of the part to Titchener. A group of wire-forming engineers studies it from all angles . . function, design, cost. If they find that wire can do a better job they'll submit estimates or a sample of the revised piece for your consideration. If they honestly feel wire can't improve your product, they'll tell you that, too.

The Titchener Test costs you nothing . . . imposes no obligation. It's unbiased and confidential. Merely send print or a sample . . . describe your wants in a covering letter.

Send for FREE Handbook!

"Use of Wire Construction in Product Design"



An illustrated 20page technical handbook sent free to management, production, purchasing and engi-neering men. Write for your copy.

(Continued from page 204)

Special feature of the conference was a trip by delegates and their wives to the beautiful Laurentian Mountains for luncheon and sightseeing. Other events on the lighter side included the traditional "Stag Dinner" and the annual banquet.

Triple Header for Central Mich Ass'n

September 29 was Bosses' Nite, Past Presidents' Nite, and Honorary Members' Nite for the Purchasing Agents Association of Central Michigan. The meeting was held at Michigan State College's Union in Lansing and Nels Gibbin performed



C. F. Ogden-P. A. A. C. M.'s first 1954-5 featured speaker

ably as chairman. Some 300 members and guests were on hand to hear the featured speaker, Chet Ogden. An able forceful speaker, Mr. Ogden heads Detroit Edison's purchasing. In addition, his many N. A. P. A. activities include a term as national president.

Since it was Bosses' Nite, Mr. Ogden did not neglect to mention the important role purchasing can play on the management team. Prior to Mr. Ogden's talk, President Stewart presented honorary members with renewals of their membership.

Football Talk at Canton

"Highlights of the Cleveland Browns' 1954 Season" was the featured attraction at the September meeting of the Canton and Eastern Ohio Association of Purchasing Agents. On hand to present this interesting film and answer questions was Lin Houston. Mr. Houston is a former member of the Browns' team

(Please turn to page 212)

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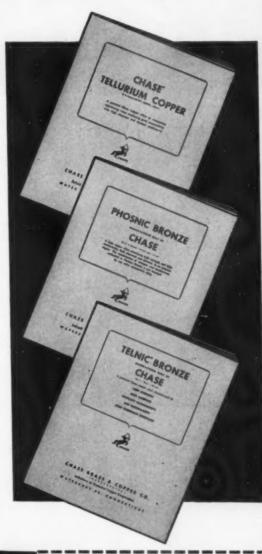
This alloy, developed by Chase, has excellent machinability plus high conductivity. Chase Tellurium Copper can be machined with tool speeds and settings similar to those used with Free-Cutting Brass, permitting high rates of production. But, unlike Free-Cutting Brass, Chase Tellurium Copper may be hot worked easily, and may be cold worked almost as extensively as pure copper. For Chase's free Tellurium Copper booklet, check the coupon below.

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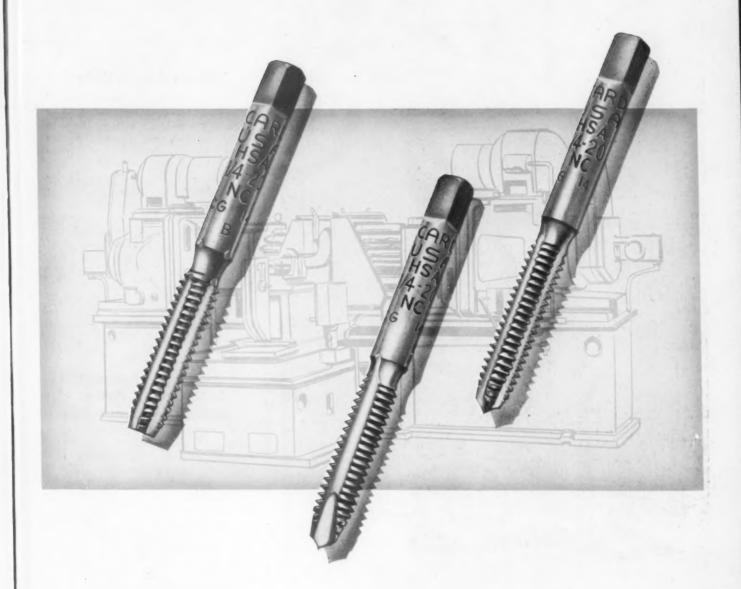
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For More Information Circle No. 335 on Inquiry Card-Page 17

(Continued from page 208)

and was able to provide many fascinating sidelights drawn from his personal experience as a lineman. Members agreed that Ron Archibald had done a good job on the first program of the 1954-5 season.

Cleveland Ass'n Meets

Purchasing Agents Association of Cleveland started its 1954-5 year with a top notch program. Because of the tremendous interest in the topic, the forum on "Small Order and Blanket Order Problem" was carried on from last year. Harry Henry, who has been conducting research all summer on the subject, again acted as chairman. After the forum and a very good dinner, the group heard the featured speaker of the evening. This time he was a PA turned treasurer—E. A. Stevens, treasurer of the B. F. Goodrich Co. (and former director of purchases). Mr. Stevens delivered an interesting and informative talk on "Rubber-World Commodity."

John A. Hill Addresses Southern Conn. Meeting

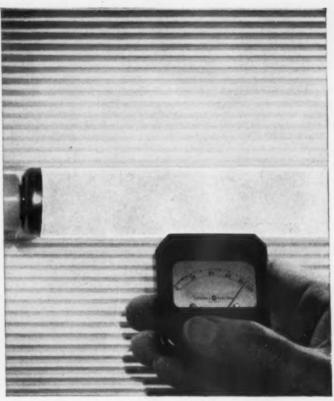
Stonehenge Restaurant in Ridgefield was the rendezvous for the opening fall meeting of the Purchasing Agents Association of Southern Connecticut. The 1954-5 season got off to a good start with top flight speaker. He was John A. Hill, president of the Air Reduction Co. Mr. Hill is known as an advocate of the role purchasing can play as a member of the management team and his talk, "The Purchasing Revolution," at the national convention is well remembered. This time Mr. Hill spoke on "People and Profits." He outlined how people can be developed in an organization and how they, in turn, can contribute to the success of that organization. He was introduced to members by Association President James Miller.

New Orleans Association

The October meeting of the Purchasing Agents Association of New Orleans featured something different—and interesting—in the way of a program. Principal speaker was Mr. Nash Roberts, the Jax Weatherman. In addition members heard a short talk on the business outlook by their own economist, Mr. Robert Elsasser.

(Please turn to page 214)





Regular slimline, left, gives 620 units of light. New High Output Rapid Start lamp, right, gives 840 units of light.

NEW GENERAL ELECTRIC FLUORESCENT LAMP GIVES 1/3 MORE LIGHT THAN ANY PREVIOUS FLUORESCENT

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A new G-E base and socket design protects the lamp contacts by recessing them. A simple push-pull sets the lamp in its fixtures.

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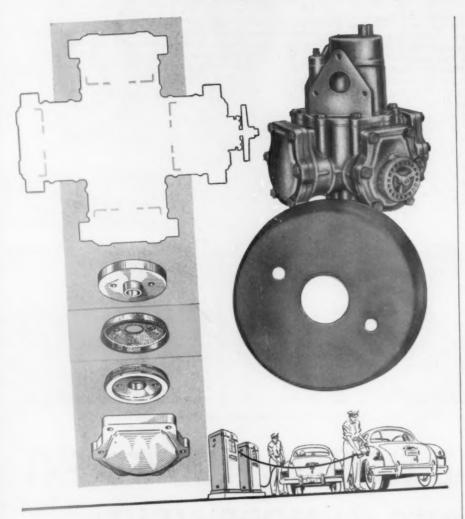
The new General Electric High Output fluorescent lamp is especially suited for use in areas with high ceilings, in factories, warehouses, offices and stores. Also in store windows, showcases and other places where you want higher lighting levels in keeping with the modern trend. New fixtures designed for the G-E High Output lamp will soon be available from a number of lighting fixture manufacturers.

For information, write to Lamp Division, General Electric Company, Dept. 166-P-11, Nela Park, Cleveland 12, Ohio.

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(Continued from page 212)

Members are looking forward to the November meeting when they will hear NAPA President G. W. Howard Ahl. Also on the calendar for November is the informal Fall dinner Dance. It will be held on the 24th at Metairie Country Club. Members may bring guests to this annual fete.

New members introduced at the October meeting include: Gus H. Olsen, Metal Goods Corporation; David L. Asher, Oronite Chemical Co.; and E. D. O'Connor, Sefton Fibre Can Co.

J. E. Dornoff Addresses Milwaukee Association

Featured speaker at the October 12 meeting of the Milwaukee Association of Purchasing Agents was James E. Dornoff, vice president in charge of sales, Pate Oil Co. He is past president of the Sales Executive Club of Milwaukee and organized the "Flying Horsemen of Sales"—a group which has talked to more than 60,000 salesmen. Mr. Darnoff is a very able speaker and his talk, "When There Is No Vision, People Perish," was much appreciated by his audience.

Preceding the dinner meeting there was a panel on shell moulding. The film "Shell Moulding and You" was presented by Jack Hinds of G. E.'s Chemical Division. James E. Moriarty of Sivyer Steel Casting Co. served as panel moderator. Committee members included B. J. Ketchum, Ted Affronti, M. A. Olsen, A. J. Fellows, and E. E. Klatt.

On October 26, the Association had a special educational program. First there was a plant visit to the Forest City Laboratory in Madison, Wis. Serving ably as chairman of this event was Al H. Kossel of Pittsburgh Plate Glass Co. At the dinner meeting the principal speaker was Mr. Walter Braeger who heads material handling for the Oscar Mayer Co. Mr. Braeger also is an instructor in material handling at the University of Wisconsin so he was able to discuss his subject, "Contributions Purchasing Agents Can Make to Savings in Material Handling,' with real authority.

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SHEETS	No. 1—No. 2D No. 2B—No. 4 No. 6—No. 7	from 24" to 72"	up to 196" in cut lengths Also available in coils up to 48" (only in unpolished finishes 28 and 2D)	from .012" to .1874"	
PLATES	HR—HRA—HRA&P No. 4 Finish	over 10" to 132"	up to 480"	.1875" and heavier	
ANGLES	HRA&P		up to 360"	from 1/8" to 11/8"	from ¾" x ¾" to 8" x 8"
BARS Rounds, Squares, Octagons, Hexagons	HR—HRA—HRA&P CD—RT CG—CG & Polished (Rounds only)		up to 360"		from ½" to 8½"
SEMI-FINISHED Blooms, Billets		from 4" to 13¾"		from 4" to 13¾"	
FLATS	HR-HRA-HRA&P	from 3/4" to 10"	up to 360"	from 1/4" to 21/4"	
WIRE Coils and Straight and Cut	Copper, Lead, Tin, Galvanized, Wax, Bright, Oil, Soap, Lime		from 12" to 22"		from .008 to .500
COLD-ROLLED STRIP Coils and Straight and Cut	No. 1, No. 2	from 1/4" to 2311/4"	from 12" to 20"	from .010" to .1874"	
TUBING	S andard Pickle, Grit No.'s 80, 120, 180, 320 and rouge polishing		Comparable to other carbon, alloy cold-drawn tubing		O. D. SIZES from 3/4" to 9"

GRADES

A.I.S.I. TYPE	USS DESIGNATION	A.I.S.I. TYPE	USS DESIGNATION	A.I.S.I. TYPE	USS DESIGNATION
300 301 302 3028 303 304 304L 305 308	SERIES USS 17-7 USS 18-8 USS 18-8FM USS 18-8S USS 18-8S C.03 Max. USS 18-8FS USS 20-10S USS 25-12	316L TS316 317 318 321 347 TS347 TS347 A	USS 18-8Me C.03 Max. USS 19-9Me USS 18-8MoCb USS 18-8Ti USS 18-8Cb	420 430 F 430 F 430 T 431 440 A 440 B 440 C 442 446	USS 17
3098 310 3105 314 316	USS 25-12S USS 25-20 USS 25-20S USS 25-20SI USS 18-6Mo	403 405 410 416	USS 12 Turbine USS 12 AL USS 12 USS 12FM	500 501 502	SERIES USS 5 USS 55

UNITED STATES STEEL CORPORATION, PITTSBURGH . AMERICAN STEEL & WIRE DIVISION, CLEVELAND . COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
MATIONAL TUBE DIVISION, PITTSBURGH . TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. . UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STAINLESS STEEL

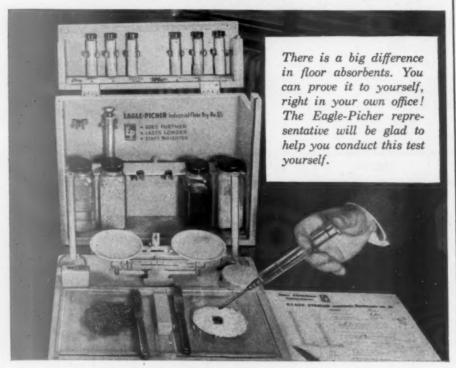


4-673

SHEETS . STRIP . PLATES . BARS . BILLETS . PIPE . TUBES . WIRE . SPECIAL SECTIONS

UNITED STATES STEEL

20-minute demonstration saves Fafnir \$1,500 a year



Switching to Eagle-Picher Floor-Dry cuts costs 20% on floor absorbents

at The Fafnir Bearing Company

With this portable laboratory, Eagle-Picher Floor-Dry and the floor absorbent then in use were analyzed for The Fafnir Bearing Company, New Britain, Connecticut. The simple 20-minute comparison test proved that Eagle-Picher Floor-Dry would produce worth-while savings . . . savings that actually amounted to \$1500.00 the first year!

Here's what this demonstration shows:

- The amount of oil and water absorbed for given bulk.
- The cost of your absorbent in terms of absorption and coverage.
- The amount of coverage you're getting.
- The benefits of your absorbent in terms of safety and reflective ability.

You'll find that Eagle-Picher Industrial Floor-Dry is lightweight for exceptional coverage . . . light in color for brighter, safer working areas. It's insoluble, chemically inert and non-combustible. Write today for the full story.



EAGLE-PICHER INDUSTRIAL FLOOR-DRY No. 85

Since 1843

THE EAGLE-PICHER COMPANY
General Offices: Cincinnati (1), Ohio

For More Information Circle No. 341 on Inquiry Card-Page 17

N. Calif. Federal Buyers Meet

Featured speaker for the September meeting of the Federal Procurement Officers Association of Northern California was Mr. Albert Jason. Mr. Jason is Chief of the Contract Division of the San Francisco Air Procurement District. His topic was "Contract Administration." As part of the "Know Your Federal Agency" series, the group also heard Mr. Jennings Smith C. P. A., audit manager, San Francisco Regional Office, General Accounting Office. Mr. Smith's talk, "The General Accounting Office," described many of the features of the important agency for which he works.

Petroleum Group to Meet

Members of the Petroleum Industry Buyers Group of the National Association of Purchasing Agents will hold their semi-annual meeting in Chicago on November 9, in conjunction with the yearly gathering of the American Petroleum Institute.

Headlining the purchasers' program will be B. Brewster Jennings, president of Socony Vacuum Oil Company, who will address the group on the subject, "What Management Expects of Purchasing Agents."

Other principal speakers during the buyers' sessions will be H. W. Ladd, national chairman of the API Committee for Standardization of Tubular Goods ("A Review of API Tubular Goods Standards"); and C. S. Perkins, manager of purchases, Union Oil Company of California ("Savings through Standardization").

Meetings will be held in the Upper Tower Room of the Conrad Hilton Hotel with the initial session getting under way at 2 p.m. A. R. Eimer, Standard Oil Company of California, will serve as chairman, assisted by J. R. Guynes, Magnolia Petroleum Company, first vice chairman; and J. M. Courtright, Shell Oil Company of Canada, Ltd., second vice chairman.

Toledo Association

Members of the Toledo Purchasing Agents Association learned about "The History of Ohio's Communications" recently. Featured speaker at the September meeting was Miss E. L. Ruetenick, editor of Ohio Bell Telephone's "Pioneers."



Satisfaction rests on the carton



Chesterfield's famous slogan also explains why Liggett & Myers Tobacco Co. uses Union corrugated shipping containers.

They satisfy. Union corrugated boxes are uniformly dependable.

They strengthen dealer relations, reduce complaints from retailers and distributors. Less home office paper work, fewer adjustment hours for route men. Less write-off of merchandise.

Ask your Union representative to give you the facts.



UNION BAG & PAPER CORPORATION

CORRUGATED CONTAINER DIVISION . Box Plants: Savannah, Ga., Trenton, N. J., Chicago, III.

Eastern Division Sales Offices: 1400 E. State St., Trenton 9, N. J. • Southern Division Sales Offices: P.O. Box 570, Savannah, Ga. Western Division Sales Offices: 4545 West Palmer, Chicago 39, Ill. • Executive Offices: Woolworth Bldg., New York 7, N. Y.

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There's no need to be concerned about your personal safety. You will be furnished with protective equipment. Our ventilating system effectively keeps the atmosphere clear for your breathing comfort. And every known safety device is employed for your constant protection.

We'll escort you thru the heart of the foundry. You'll be standing beside the roaring furnaces . . . be able to look into their bubbling bellies . . . see the effect thousands of amperes have on the charge thru massive carbon electrodes. You'll see the great ladles swing away to spew forth their white hot streams of molten steel into hundreds of mass-produced molds. You'll be permitted to scale the stories-high sand mill . . . and in a matter of minutes return to see castings being cleaned that you saw poured a short while before.

We'll apologize, in advance, for the noise. We're sure you'll be gracious enough to overlook the one inconvenience we cannot control.

These experiences... and many more are yours without obligation. A post card or letter in advance will assure you an educational trip thru America's Most Modern Electric Steel Foundry. Drop in anytime!



UNITCAST CORPORATION

Plant III

1414 E. BROADWAY at RICHFORD, TOLEDO, O.



For More Information Circle No. 343 on Inquiry Card-Page 17

Program Aids

A new 16 mm color and sound motion picture which shows how to improve product design and reduce costs through use of die castings is now available from the American Zinc Institute, 60 E. 42nd St., New York 17, N. Y. Entitled "Die Casting—How else would you make it?," the film runs 35 minutes.



One case history presented in "Die Casting— How else would you make it?" is this defroster duct being cast at a rate of 750/hour.

Included is a comprehensive evaluation of zinc, aluminum, magnesium and copper base die casting alloys and the relative advantages and limitations of each. Detailed examination of 45 parts die cast from various alloys illustrates possible uses of the process. The case history style of presentation follows the die casting through all operations including machining, buffing, plating, painting, etc.

Wis. NIGP Chapter Meets

West Allis, Wis. was the locale of the quarterly meeting of the Wisconsin Chapter of the National Institute of Governmental Purchasing on October 1. A film, "The New Paul Bunyan," was shown by George N. Woodworth of the Weyerhauser Sales Co. The film covered lumber operations from the cutting of giant trees to the time finished lumber reaches the customer. Plywood production was also illustrated.

Problems of purchasing lamps for municipal use were discussed including lamp life and discounts received on large purchases. Another problem under discussion was parking meters. It was the consensus that standardizing on the type of meters originally purchased was advisable. Little price competition on this product was reported by members nor was any trouble reported with getting slugs and foreign coins in the meters.

Gil Guetzkow, liason representative between the Milwaukee pur-

(Please turn to page 224)

ANOTHER H&D FIRST

A NEW LOOK IN CORRUGATED BOXES!

Here's a new corrugated board with a new uniformly brighter color and a new smoother-than-ever finish

As another in a long list of "firsts," Hinde & Dauch has produced CORABRITE—an entirely new corrugated board. Over the years, H & D has developed strong, durable boxes to meet an incredible number of packaging needs. Now, to this strength and durability, H & D has added a vastly improved surface.

This lighter, smoother, stronger finish, which will be standard on all Hinde & Dauch regular shipping boxes, is the product of progressive paper chemistry at the laboratories of West Virginia Pulp and Paper Company.

CORABRITE offers a far better printing surface, thus enhancing the advertising value of your shipping boxes. Your boxes will have a more uniform appearance, too—CORABRITE eliminates 80% of the color variation found in natural finish kraft.

Don't wait. Write or call your H & D representative—ask about CORABBITE.

Corabrite



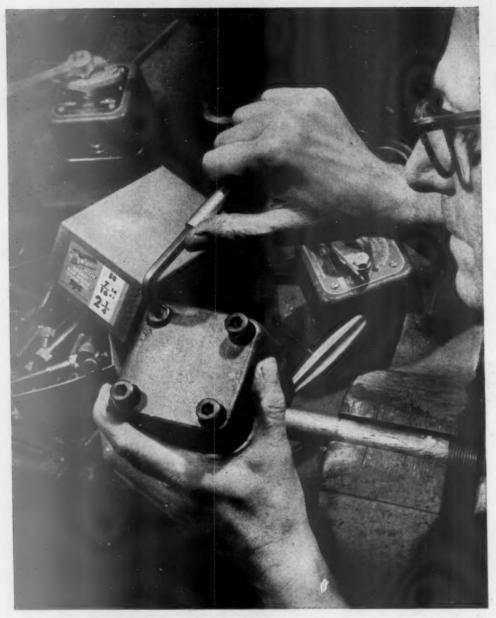
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Four UNBRAKO Socket Head Cap Screws speed assembly in the plant, and reassembly in the field, of these flow-control valves providing 16 different inlet-outlet flow direction combinations.

Get personalized service, faster delivery with UNBRAKO Standards—stocked by your distributor

When you use Unbrako socket screw products, you get the finest socket screws made, plus the personalized service and the faster delivery of your local distributor. And he enables you to cut your inventory, set up more space for production. For more information, write for Unbrako Standards—a complete listing of precision socket screw products carried by your distributor. Standard Pressed Steel Co., Jenkintown 31, Pa.



The knurling on the head of the screw permits faster assembly, because it provides a slip-proof grip.



The uniform depth and size of the hex socket assure maximum torque in wrenching. The accurate diameter of the head permits countersinking.



UNBRAKOS—made of heat treated alloy steel—have fully formed threads, Class 3 fit; controlled fillet and continuous grain flow for strength. Supplied in standard sizes from #4 to 1".



SOCKET SCREW DIVISION











For More Information Circle No. 345 on Inquiry Card-Page 17



...with a <u>sure</u> Source of Supply

You can be sure of economy and efficiency when you place your order for stainless steel with G. O. Carlson, Inc. Skilled craftsmen working with the finest equipment produce stainless steel plates to the highest chemical industry standards and deliver them to you on time.



STAINLESS STEEL PLATES rolled to almost any size or thickness, %" and heavier, solid or clad, or cut to your individual requirements—whether rectangles, circles or special patterns. Large tonnage of HRAP finished plate carried in stock for prompt shipment. Illustration shows one of our many plate storage racks.



STAINLESS STEEL HEADS press formed or spun in a wide range of sizes and gauges to ASME and Standard specifications. A portion of the stainless steel heads storage is shown above.

STAINLESS STEEL FORGINGS and SPECIAL PATTERNS—Specialized equipment provides flexibility in the production of flanges, circles, rings, sketch plates and other specialties wat or machined from plate, or forged and rough machined.

Also STAINLESS STEEL BARS and SHEETS (No. 1 Finish)

Write for Carlson Weekly Stock Lists.
Call on us for complete information about Carlson's services in stainless steel.

Stainless Steels Exclusively

CARLSON, INC.

Plates • Plate Products • Forgings • Bars • Sheets (No. 1 Finish)

THORNDALE, PENNSYLVANIA

THORNDALE, PENNSYLVANIA
District Sales Offices in Principal Cities

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1/4 5/16 3/8 1/16 1/2 1/16 5/16 3/4 1/8

11/16

11/4

1 1/2

21/4

21/2

TUBING

Characteristics of Teflon

Very high dielectric strength.

Extremely low power factor.

Completely inert.

Temperature range -300° to +500° F.

Strong, flexible, weather

LOW COEFFICIENT OF FRICTION

Absolutely non-stick.

3 Other diameters on specification

TYPICAL SIZES

INCHES

O. D. 1. D.

3/6 1/2 3/4

1 11/2

11/2

CHEMICAL

ELECTRICAL

THERMAL

MECHANICAL

HERE'S WHY: You can order in quantity and in a wide variety of sizesand be certain of complete uniformity throughout. Our strict density control assures you thoroughly non-porous Teflonfree from any flaws which might possibly affect your end use or product. Dimensions are accurate to your most critical tolerances-no rejects. waste of material or loss of time. You get product purity-Teflon at its best in every one of its remarkable characteristics. Delivery is prompt—you get the quantity you want when you want it.

Since the availability of Teflon, "John Crane" engineers have worked with Industry to successfully solve innumerable problems and develop new applications. You can benefit from their experience and know-how.

Request full information and ask for our bulletin, "The Best in Teflon." Crane Packing Co., 1811 Belle Plaine Ave., Chicago 13, III. . In Canada: Crane Packing Co., Ltd.,

CRANE PACKING COMPANY

(Continued from page 220)

chasing department and the federal government on civil defense equipment procurement talked about purchase of surplus property from the federal government. At present there is no matching of funds as was the policy during the war. This may be changed later, however. Members were advised to take up civil defense matters with the director in Madison. Funds may be matched to some degree later-perhaps 75-25. A questionnaire will be issued on this subject shortly; answering it correctly may mean money saved for many municipalities. A bill has been introduced in Congress covering surplus sales to municipal govern-ments and Mr. Guetzkow recommended that members obtain a copy of it when it has been passed.

Joseph Nicholson, past president of NIGP, urged members to attend the national convention in New York City. Among the important subjects being taken up there is the allocation of surplus equipment.

At an election held at this meeting, the present officers, Andrew Lehrbaummer, president, and Carl Peters, secretary-treasurer, were chosen to serve another year. The next meeting will be Milwaukee on January 14.

Montreal Ass'n Meets

The 1954-5 season for the Purchasing Agents Association of Montreal got off to a good start. Featured speaker was Lt. Col. Howard M. Baker, M. B. E. Colonel Baker is safety director of the Montreal Transportation Commission. topic, "Providing Public Transportation in Metropolitan Montreal," was of real interest to Montreal PA's.

Attending their first meeting were the following new members: Giles Bauset, American Paper Box Co. Ltd.; J. Claude Cantin, St. Lawrence Cement Co.; W. F. Livermore, Leyland Motors Ltd.; Charles F. Phelan, Pepsi Cola Co. of Canada Ltd.; and Lloyd W. Smith, Canadian Arsenals Ltd.

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617 Parkdale Avenue, N., Hamilton, Ont.

THE NEW LINK



IN CHAIN ...



REPUBLIC Round CHAIN

Round, the oldest name in chain, is now linked to Republic Steel, producer of the world's widest range of steels and steel products.

This integration of Round's chain manufacturing facilities with Republic's experience in producing all types of steels assures you of the highest quality chain products.

Republic will stress service and quality which have been characteristic of Round chain products for over 85 years. REPUBLIC Round CHAIN is the only chain where quality can be controlled from ore to finished product.

Your orders for REPUBLIC Round CHAIN will be handled promptly and efficiently through a central sales organization. Strategic coast-to-coast location of manufacturing plants and warehouses assures you of prompt service and delivery.

The Republic Round Chain Division manufactures a complete line of welded and weldless chain for every industrial, farm and home requirement.

For additional information on sales and service, write:

REPUBLIC STEEL CORPORATION

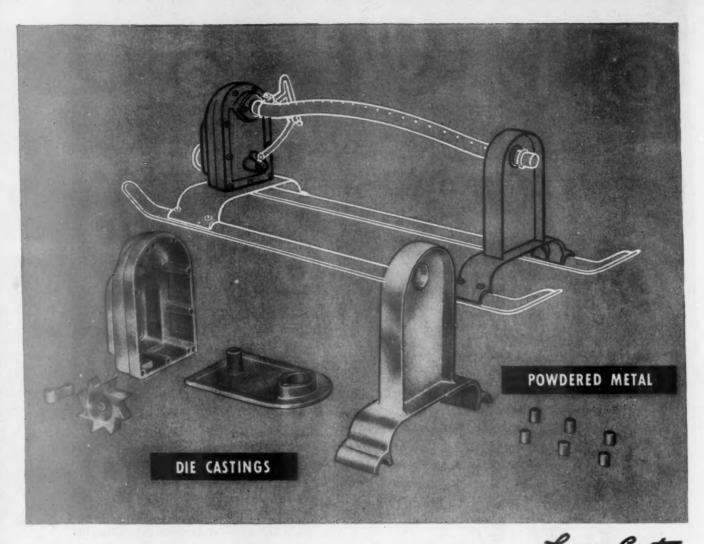
Round Chain Division

Broadway and Chaincraft Road, Cleveland 5, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, New York



Other Republic Products include Steel Sheets, Strip, Bars, Wire, Pig Iron, Steel and Plastic Pipe, Bolts and Nuts, Tubing

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PARKER USES 2 MEANS TO 1 END

PARKER SALES ENGINEERS

CHICAGO 49, III.
Ollie J. Berger Company • 2059 East 72 Street

CINCINNATI, Ohio

William H. Broxterman * 2174 Buck Street

DETROIT 35, Mich.
Hodgson-Geisler Co. • 18917 James Couzens

GIRARD, Penna.

Daniel F. Marsh . 35 Chestnut Street

METUCHEN, N. J.

Girard L. Palmer • 97 Spring Street

SYRACUSE, N. Y.

J. C. Palmer • 712 State Tower Bldg.

BELLEFONTE, Penna.

Warren G. Olson • 420 East Linn Street

Low cost—consistent with high quality—was the primary objective in producing important component parts for the popular lawn sprinkler made by Eastern Machine Products Inc. Parker gained this objective by making the end bracket, actuator housing, crank, and water wheel of aluminum die castings. The bushings inside the housing are bronze alloy sintered metal. The end result: component parts that meet every specification at lower cost.

This example emphasizes an important point about Parker service. No matter what your requirements in either die castings or powdered metal, Parker has the skill, experience and facilities to provide either or both. This undivided responsibility has saved money—and solved problems—for many users. Your problem may be one that Parker can solve in like manner. Just call the nearest Parker sales engineer listed at the left.

Parker White Metal Company . 2153 McKinley Ave., Erie, Pa.



ALUMINUM and ZINC die castings



LLING CUTTERS and END MILLS by Butterfield

With the addition of Milling Cutters and End Mills, Butterfield now offers a full line of metal cutting tools. Milling Cutters and End Mills are made to the same exacting standards of dependability and extra performance which mark Butterfield's Taps, Dies, Drills, Reamers, Counterbores, and Screw Plates.



TAPS · DIES · DRILLS · REAMERS · COUNTERBORES · SCREW PLATES · MILLING CUTTER

FOR BETTER SERVICE CALL YOUR BUTTERFIELD DISTRIBUTOR



You can depend upon Vinco production specialists to mass produce precision parts to your specifications the same as you depend upon a pharmacist to fill your prescription.

Facilities in the production plant at Vinco are set up to mass produce parts rapidly and inexpensively from ferrous and non-ferrous metals. Personnel is skilled in operating the automatic and semi-automatic equipment. An efficient quality control system is based upon a completely equipped inspection laboratory.

You save both time and money because Vinco made parts are within specified tolerances, thus assuring proper assembly.

Have Vinco produce component parts for you and learn why a specialist is your best bet.

VINCO CORPORATION, 9119 Schaefer Hwy., Detroit 28, Mich.

Metal Component Parts Mass Produced • Aircraft and Commercial Gears • Model B-1
Dresser • Precisiondex • Spline Gages Master Gears • Gear Rolling Inspection Fixtures
• Camshaft Comparators • Optical Master Inspection Dividing Heads • Involute Checker.

WILLIONTHS OF AN INCH FOR SALE

TRADEMARK OF DEPENDABILITY

Remington Rand Demonstrates Univac In New Film

A film demonstration of the world-famed Remington Rand "Univac", showing the applications of the giant electronic computer to business and commercial problems as well as to Government and scientific work, was presented recently in New York City.

The film, entitled "Univac", was introduced by John W. Parker, vice-president of Remington Rand in charge of the company's Electronic Sales Division.

"The increased control over office techniques which the processing capabilities that such electronic systems as Univac give to management may well be the beginning of an office revolution similar to the industrial revolution," Mr. Parker said.

He said that competitive office methods, which were "thought to be models of efficiency only a few years ago," today are being "rendered obsolete in company after company by the advent of Univac."

He cited the United States Steel Corporation, General Electric Company, Dupont and the Metropolitan Life Insurance Company as "giants of industry and business that have installed the Univac with one aim in mind; to solve their particular problems as efficiently and economically as possible."

"I don't want to convey the impression that a computer's usefulness is limited to a large corporation," Mr. Parker said. "Any organization now using punched-card equipment may find an electronic computing system more economical and efficient—if not through actual installation of a Univac system, then certainly by renting its services from a service-center installation."

The film, tracing the earliest efforts of civilized man to plan and build for commerce and industry, shows the increasing complexity and detail of business office administration over the past few decades.

The need for assembling, correlating, processing and analyzing enormous amounts of information is graphically demonstrated, leading up to the requirement of machines that can "make routine decisions" as well as assemble facts.

The film for the first time shows the new Remington Rand highspeed printer, which is capable of printing up to 600 lines of type per

(Please turn to page 232)

55% more powerful, yet lighter in weight!

New SKIL 1/4" Model 75 Drill

More Rugged! More Comfortable in Use! **Cuts Costs! Easier to Operate! More Efficient! Boosts Production!**

Just one trial of this new SKIL Drill will prove its advantages to you: For here's a husky, heavy-duty drill that's 55% more powerful while it's actually lighter in weight!

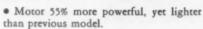
In the SKIL Model 75 you'll find really outstanding performance combined with top operating power, longer operating life. A choice of 7 speeds available, from 500 to 5,000 r.p.m. . . . depending on your individual work needs. Capacity: 1/4" in steel, 1/2" in wood. Have your distributor show you the SKIL "75" now!

NEW! SKIL Drill Model 78—Compact standard duty drill with 3/4" capacity in steel (5/4" in wood). Ideal for general purpose drilling. Produces high torque at 750 r.p.m. for tough jobs. Equipped with removable auxiliary side handle.



LOOK OVER THESE IMPORTANT FEATURES!

- All anti-friction bearings-for greater efficiency and low maintenance.
 - · Contour-fit handle for easier and more comfortable handling.
 - · Handy, safety-designed trigger lock for continuous operation-side location for easy operation.





· New molded rubber strain relief-protects cord against fraying or breakage at drill cord attachment joint.



 Larger inspection plate, easily removed for checking and cleaning.



 Convenient chuck key holder on cord.





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- ☐ I would like a demonstration and trial... FREE!
- Please send me illustrated literature on SKIL Drills!

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145 Expert Consultants on Workers' Uniforms at Your Service ... FREE!

MEMBERS of the Institute of Industrial Launderers are uniquely qualified to assist you in developing the right uniform for any job. We have cooperated with the National Safety Council on safety programs in industry. We have worked with the U. S. Testing Company in the study of scores of technical points, such as shrinkage, color retention and tensile strength loss. We have had a hand in the development of standards of performance for work garments, in cooperation with the American Standards Association.

Our consultant service is free. You will put yourself under no obligation in using it before making any decision on work uniforms. You will pay nothing extra for its continuing benefits should you decide to rent from an Institute member.

Institute members have nothing to sell . . . but everything to rent. Not just uniforms . . . but everything from woven cotton shop towels to specialized protective garments. Members also can provide advice and service for fire retardant or acidproof safety clothing.

All the experience, all the facts, all the knowhow Institute members have acquired through the years, is completely at your disposal free of charge. Expert Institute consultants can help you develop uniforms or special garments that will be safer, more efficient, more economical. They can furnish you with any emblem, special design or color that you might want. Should you use a safety slogan? Would certain colors be safer for certain jobs? Do you need specialpurpose work clothes that are fire-retardant or acid-proofed? 145 Institute members from coast to coast have the answers to these and scores of other questions on work uniforms . . . answers based on actual experience in providing a uniform rental service for hundreds of different jobs.

More than 150,000 plants from coast to coast have found it pays to use our rental service. You carry no inventory. You have no cleaning, repairing or replacement expenses. You get the right uniform for every job . . . and it costs you far less than if you bought them yourself.



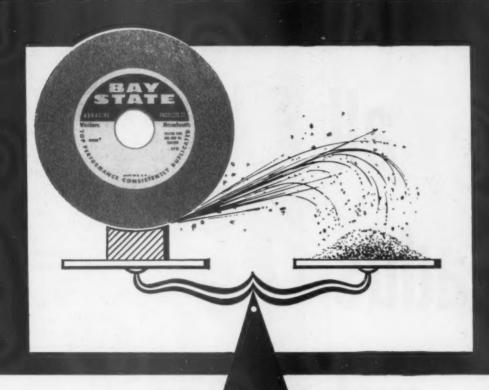
Facts are free...mistakes
are costly! Write today
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Active Members: American Standards Association; National Safety Council

BUY PERFORMANCE



... it's WORTH the Price!

THE TRUE VALUE OF A GRINDING WHEEL is measured by the quality and quantity of the grinding it does . . . not by its price.

This real value can be determined only by finding the cost per pound of stock removed and checking the accuracy and finish of the surface left on the work.

Judge BAY STATE "WHEELS OF PROGRESS" on this basis. You'll find that their exact specification and consistent cool-cutting characteristics produce longer, more useful life . . . that keeps real grinding costs at a minimum.

BAY STATE'S Factory or Distributor Representatives will be glad to show you how "WHEELS OF PROGRESS" can bring about reductions in *your* true grinding costs.



BAY STATE ABRASIVE PRODUCTS CO., Westboro, Mass., U. S. A.

Branch Offices and Warehouses — Chicago, Cleveland, Detroit, Pittsburgh Distributors — All principal cities

In Canada: Bay State Abrasive Products Co. (Canada) Ltd., Brantford, Ont.



Ask for BAY STATE'S "On-The-Job" Engineering Service.

Manufacturers of all types of Quality Abrasive Products

For More Information Circle No. 354 on Inquiry Card-Page 17

- We make the wire cloth we would use for your product... the well-known "NEWARK for ACCU-RACY" Cloth.
- We offer more than 75 years experience in wire cloth manufacture and use.
- We have the facilities for accurately fabricating parts from NEWARK Cloth in small lots or in production quantities to meet your production schedules.
- We have the skilled workers to do the job.
- We have experienced engineers ready to work with you in the design of the part to make the most effective and economical use of the wire cloth.
- It all adds up to a service that can produce "quality" wire cloth inserts for you. It is the same service that has brought us many, many repeat orders and one that has been responsible for a steadily growing list of customers.





ewark
Wire Cloth

351 VERONA AVENUE • NEWARK 4, NEW JERSEY
For More Information Circle No. 355 on Inquiry Card—Page 17

(Continued from page 228) minute, thus enabling the processing of information by Univac to be available at speeds commensurate with the internal speed of the electronic computing system.

Booklet Describes Die Casting and Advantages

A new 28-page illustrated booklet describing the die casting process and its application is now available from the American Zinc Institute, Inc., 60 East 42nd Street, New York 17, N. Y.

The booklet, entitled "Die Casting—Molten Metal to Finished Part—Direct", discusses this important production method as it affects product design, machining requirements and surface finish. The basic steps of the die casting process itself are shown pictorially.

Zinc, aluminum, magnesium and copper base die casting alloys are discussed. A section on each alloy outlines its advantages and limitations with regard to cost, dimensional accuracy, surface finish, strength and machinability. Each of these sections also includes a chart which lists for each alloy: ASTM and SAE designations, composition by weight, mechanical properties and other properties and constants of each alloy in the as-cast condition.

Four pages of photographs illustrate 15 examples of typical die-cast products using the four alloy types.

Technical Handbook Aids Purchasers of Pallets

National Wooden Pallet Manufacturers Association, 215 Barr Building, Washington 6, D. C., announces publication of a technical handbook entitled Pallets and Palletization.

The book places at the finger tips of materials handling engineers, purchasing agents, and others concerned with such problems all of the technical information that is needed to buy the best pallet possible and to use it properly. Furthermore, it is the first handbook ever prepared on pallets and their application to industry.

The booklet starts with an explanation of palletization, the reasons therefor, and how to properly plan for it. It continues with sections on principles of pallet construction, specifications, how to choose and purchase the correct pallet, unit

(Please turn to page 234)

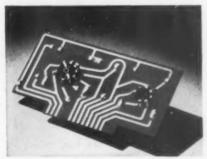
Get better printed circuits...lower costs...fewer rejects

with NEW C-D-F METAL CLADS

All manufacturers of metal clad stock for printed circuitry have made considerable progress in improving their product—a material with a metal foil surface bonded to a nonconducting base. How this has been done by one leading manufacturer, the Continental-Diamond Fibre Company, illustrates some of the problems involved in buying this type of material and in understanding its design potentials.

C-D-F CONSOLIDATED GRADES

At first, small test lots of Dilecto laminated plastic with copper surfaces were made. Almost every core material was used. Finally the number of practical grades for printed circuit work narrowed down to these few grades which retained to a large degree the inherent electrical qualities of their base material and resin at high temperatures:



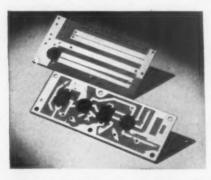
COPPER CLAD GRADE XXXP-26

A laminate with excellent electrical and mechanical properties. High moisture resistance and dimensional stability. Recommended for applications where

high heat and high insulation resistance plus low dielectric loss under high humidity is needed. Low cold flow characteristics. Can be hot punched to 1/8". Good flexural strength. Natural green color.

This is one of the *improved C-D-F Dilecto laminates*. Advances in resins and manufacturing techniques makes this grade almost homogeneous, with improved impregnation of the filler. Thorough impregnation eliminates entrapped moisture and air, giving greater moisture resistance and better dielectric properties.

Any metal clad is no better than its base and the care taken in laminating. With the cost of material high, compared to labor and inspection, the purchase of a *uniform* metal clad material, like this C-D-F grade, becomes vital.



COPPER CLAD GRADE XXXP-24

Similar to grade XXXP-26 in electrical and moisture resistance properties, but not quite as strong mechanically. Equal cold flow and punching characteristics. Natural brown.

COPPER CLAD GRADES GB-112S AND GB-261S

These silicone grades use a glass fabric laminate with a copper foil surface on one or both sides. Recommended where high heat resistance and low dielectric loss properties are required. For certain tuners and inductances the

low dielectric loss factor of this grade makes its higher cost acceptable. A continuous filament (Grade GB-112S) is used for thicknesses 1/32 to 1/16". A staple filament (Grade GB-261S) is used for thicknesses over 1/16".

COPPER CLAD GRADE GB-116T

A glass base laminate using duPont's tetrafluoroethylene resin, Teflon, for outstanding resistance to high heat with extremely low dielectric loss properties. A fine weave continuous filament glass fabric cloth is used for superior mechanical strength and good machining qualities. In spite of its high cost, this C-D-F grade has demonstrated that it can save money and do a job that no other single material can in microstrip high-voltage, high-frequency circuit elements. Remember, C-D-F is a major supplier of sheets, tapes, rods, tubes of Teflon, has valuable experience in its manufacture and fabrication. Write for samples.

C-D-F INCREASED BOND STRENGTH

By developing a special thermo-setting adhesive particularly suited for metal clads, C-D-F was able to increase the bond strength of their laminates considerably above their original figures. Bond or peel strength, the amount of pull required to separate the foil from the core material, is one of the most important physical properties. Therefore, the purchaser should compare his source of supply with these C-D-F average test values:

BONDING STRENGTH-FOIL TO LAMIN	JATE

MATERIAL	Average or Typical Value Lbs. pull per 1" width of foil to separate
XXXP-24 or XXXP-26 plus 0.0014" copper XXXP-24 or XXXP-26 plus 0.0028" copper GB-116T plus 0.0014" copper GB-112S plus 0.0014" copper GB-261S plus 0.0014" copper	5 to 8 7 to 9 5 to 12 6 to 8 7 to 10
These values are based on tests at prevailing roo	m temperature (20-30°C.)

C-D-F INCREASED HEAT RESISTANCE

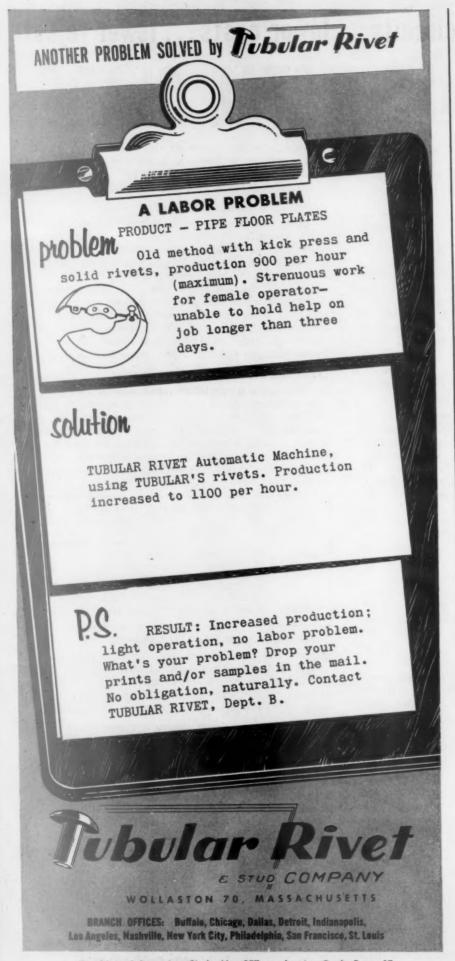
Special efforts by C-D-F technicians to increase the heat resistance of all C-D-F Metal Clads have resulted in certain special grade variations able to withstand higher soldering temperatures without damage. As production methods change, C-D-F offers materials to meet your requirements.

NOW . . . HOW ABOUT YOUR STORY?

Notice how we have talked about C-D-F and what we have done to improve quality and uniformity of metal clad products. Much of this has been accomplished with the guidance and cooperation of leading users of printed circuit stock. No one company knows all the answers . . . but C-D-F, a big reliable source of supply, can help you get better printed circuits . . . lower costs . . . fewer rejects. Look up the address of your nearest C-D-F sales engineer in Sweets Design File, write us for samples you can test in the lab and on the production line, technical bulletins, help on your specific project. We want to work with you!



CONTINENTAL-DIAMOND FIBRE COMPANY
NEWARK 41, DELAWARE



(Continued from page 232)

load patterns, and instructions for the use, maintenance and inspection of pallets. A glossary of terms and list of government specifications are included for reference purposes.

The handbook is printed in color and extensively illustrated. It will be available without charge upon request from most reputable pallet suppliers, or may be ordered through the Association headquarters for \$1.00 per copy.

Railway Express Agency Buys 3000 New Delivery Trucks

Purchase of 3,000 new 1½-ton pickup and delivery trucks by Railway Express Agency, Inc., at a cost of \$9½ million, has been announced by A. L. Hammell, President of the nationwide transportation company.



Typical model of the new Railway
Express trucks

The new units, many of which are expected to be put in service before the year-end in the District of Columbia and sixty-five other cities in thirty states, are being custom-built to the express agency's specifications. Following engineering studies the agency has adopted a six-year replacement policy. After extensive negotiations with a number of financing agencies arrangements were made for loans to be repaid during the life of the equipment.

Providing for the retirement of several thousand of the company's 13,500 vehicles, acquisition of the new units is expected to further speed the local handling of express shipments at not only the sixty-six points getting new fleets, but at many other places where older vehicles with higher operating and maintenance costs will be retired.

Decimal Equivalent Chart

New, three color, plastic coated desk size Decimal Equivalent Chart is offered by John Hassall, Inc., Box 2183, Westbury, Long Island, New York.

For More Information Circle No. 358 on Inquiry Card—Page 17 PURCHASING



ACTUAL SIZE

There's something brand new in the photography picture—a polyethylene carrying case for the SKAN "Quick" exposure meter. Polyethylene was the natural choice of Continental's plastic designers because it's warm and smooth to the touch and as highly resilient as the finest leather. It resists tearing and cracking, too; and high style can be molded right into it.

The new Skan case is one piece, with no zipper, snaps or buckles—nothing to break off, lose, wear out or get out of adjustment. The meter fits snugly in its cushioned case, ready for instant reading. Photographers love it.

Continental is an old hand at applying plastics to product problems. Like artists, our designers work with a full palette of colors, types and properties. Have you ever thought of your product in plastic? Why not? Talk it over with Continental.

CONTINENTAL CAN COMPANY MILLSPLASTIC DIVISION

INJECTION MOLDERS AND EXTRUDERS OF THERMOPLASTIC MATERIALS

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"If our executives did not read BUSINESS PUBLICATIONS I'd consider them unfit for their jobs"

Col. Willard F. Rockwell, Chairman of the Board, Rockwell Manufacturing Company



"We feel the same way about our sales managers," Colonel Rockwell continues. "We expect them to know what is being printed in the business publications and to guide themselves accordingly. Further, we ask our salesmen to keep our home office informed about the comments of our customers on business periodicals."

Like Colonel Rockwell, other business and profes-

sional leaders the country over are reading business publications covering their fields of activity. They are getting from these magazines vital information about new products, new methods, new marketing trends, price and distribution changes through the advertising as well as the editorial pages. The Business Press offers a direct route to anyone who has anything to sell to business and professional men.



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Press of America...bringing thousands of pages of specialized know-how and advertising to the men who make decisions in the businesses, industries, sciences and professions...pinpointing your audience in the market of your choice. Write for complete list of NBP publications.



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. . . good reason! They're famous for dependability. Economical, too.

What's more, Powell has a complete line.*

Famous for dependability

Wherever flow requires dependable control, there's the place for Powell Valves. Powell probably makes more kinds of valves and has solved more valve problems than any other organization in the world.

Available through distributors in principal cities. Made ½8" to 30" and for 125 pounds to 2500 pounds W.S.P. Bronze, iron, steel and corrosion-resistant metals and alloys. On problems, write direct to The Wm. Powell Company, Cincinnati 22, Ohio.



CONTROLS FOR THE LIFE LINES OF INDUSTRY



Powell Valves 108th year





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... SUPERSTRONG means a century of experience in packaging design and construction.

... SUPERSTRONG means assured service through strategically located plants, and of controlled quality through ownership of all operations.

..SUPERSTRONG means diversity through manufacture of virtually every type of corrugated, wire-bound or wooden container.

... SUPERSTRONG means sound engineering design and construction.

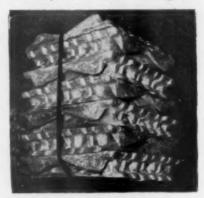
Be sure—specify SUPERSTRONG.

RATHBORNE, HAIR and RIDGWAY BOX CO. 1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

For More Information Circle No. 360 on Inquiry Card-Page 17

Interlocking Aluminum Ingots Now Available

One of the biggest problems for buyers of aluminum ingot products has been the difficulty in unloading shipments. Freight carloads or truck shipments of ingots, jostled and bumped on long hauls, sometimes arrive with broken and disarranged bundles, making unloading and storing a costly and time-consuming task. A new interlocking ingot, just placed on the market, is claimed to overcome this problem, and to offer other important cost advantages.



This bundle of ingots is still secure after being dropped from a lift truck

The new interlocking aluminum ingot, available from Reynolds Metals Company, can be handled without pallets, and can be double or triple stacked safely and easily. Bundles of the new ingots have been dropped to a plant floor from the full height of a lift truck, and still the bundles remain intact.

In addition, Reynolds says, the ingots' greater surface area makes them melt faster, with less gas. Also, a smoother top surface eliminates chances of trapped moisture and dirt. A metallurgical refinement also is claimed since quicker chill in production gives smaller grain size.

The new product is available either as primary or casting alloy ingots. The primary ingots are of the highest quality with up to 99.9 per cent purity where desired.

New NICB Index Shows Little Change in Consumer Prices

Consumer prices dipped 0.2% to remain virtually unchanged from July to August, 1954, according to the newly revised 10-city index just computed by the National Industrial Conference Board. The revised 10-city index has a base date of 1953

(Please turn to page 242)

DON'T HUNT!

Ask Your LYON Dealer

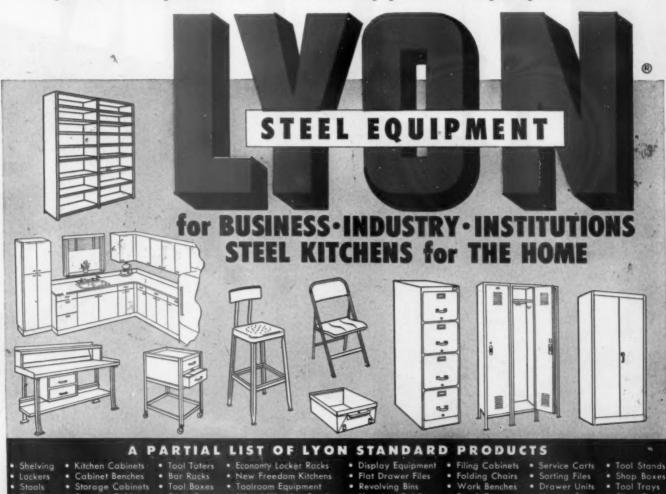
• Hunting for the best source of steel equipment is time-consuming and not at all necessary.

Your Lyon Dealer offers the world's most diversified line of quality steel equipment. (A few of Lyon's 1500 standard items are shown below.) Equally important, he can show you how to get the most out of steel equipment in terms of saved time, space and money. Call him and he'll come a-runnin' with a 76page catalog brim-full of equipment and ideas.

LYON METAL PRODUCTS, INC. Gen. Offices:1133 Monroe Ave., Aurora, Ill. Factories in Aurora, Ill. and York, Pa. Dealers and Branches in All Principal Cities



Lyon also has complete facilities for manufacturing special items to your specifications



Revolving Bins

Parts Cases
 Wood Working Benches
 Hanging Cabinets
 Bench Drawers
 Hopper Bins

Drawing Tables

· Work Benches





(Continued from page 238)

(the old base date was January, 1939-=100). The survey will continue to review the price situation for moderate-income families in ten major United States cities each month.

The Board's all-items index for August, 1954 stood at 100.4, compared with 100.6 in July, 1954. A year ago (August, 1953) the index stood at 100.6. (Base date of the series is 1953=100).

The purchasing value of the dollar was 99.6¢ for August, 1954 (1953 dollar=100 cents). Over the year, purchasing value was up 0.2%, the dollar in August, 1953 being worth 99.46 in terms of the base figure.

On the old base (January, 1939, dollar=100 cents), the purchasing value of the August, 1954, dollar was 55.3¢ compared with 55.2¢ a year earlier.

High Production Costs Called Threat to Lumber Markets

The high cost of producing lumber threatens to price Western Pine products out of the market, some 200 members of the Western Pine Association were told recently.

Association President U. R. Armstrong, vice president and general manager of the Hallack and Howard Lumber Co.'s operations at Winchester, Idaho, warned that increased costs have already lost some Western Pine lumber markets to other materials.

The lumberman said the present day lumber market lacks the competitive demand of the past few years, and consequently "mill realization" has fallen during the first half of 1954.

But despite even a late Spring in the consuming areas, he said, regional shipments for the first half of the year were the same as for 1953, and production was off only two per cent. Armstrong predicted reasonably stable business for the remainder of 1954, at least, because of heavy nationwide construction.

The long range of the lumber strike, the association's assistant secretary-manager, W. E. Griffee told the lumbermen, will be at least "mildly" harmful, but at the mo-ment it has been decidedly helpful to unstruck mills in what otherwise would have been a "highly competitive summer."

Safety Council Issues Statistical Yearbook

The 1954 edition of the National Safety Council's statistical year-book, "Accident Facts," is now off the press.

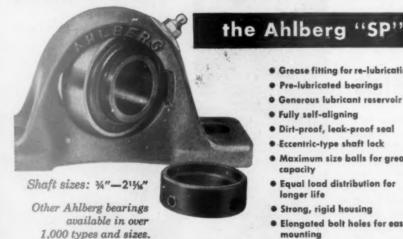
"Accident Facts" contains facts and figures on all types of accidents -industrial, traffic, home, farm and

Twenty pages of the book are devoted exclusively to occupational accidents and provide the factual background necessary to give direction to an industrial safety program. The 96-page book is an invaluable source of ideas and data for making speeches, writing articles, preparing reports and planning safety campaigns.

"Accident Facts" is priced at \$.75 a single copy and less for quantities. Inquiries should be sent to the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

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• Grease fitting for re-lubricating

Pre-lubricated bearings

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For More Information Circle No. 363 on Inquiry Card-Page 17



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write for our new catalog of standard and special washers for all types of industrial applications.



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For More Information Circle No. 364 on Inquiry Card-Page 17

PURCHASING

FROM the Bundy Sketchbook a designer's imagination



SWEATER DRYING FORM



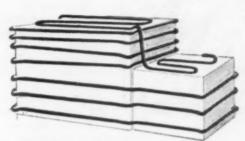
LEGS FOR MODERN DESK

REMARKS Are complicated tubing snarls eating into profits? Why not let skilled Bundy engineers show you how to simplify fabrication operations; save time, money, materials. Why not check, too, the advantages of using strong, lightweight Bundyweld, the only tubing double-walled from a

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single metal strip.

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COILS FOR HOME FREEZER



FRAME FOR TOY WHEELBARROW

WHY BUNDYWELD BETTER TUBING



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Bundyweld, double-walled and brazed through 360° of wall contact.

Leakproof High thermal conductivity High bursting point High endurance limit Extra-strong Shock-resistant Ductile

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NOVEMBER, 1954



Every day is Saturday... at Belmont!

If our ingots were infantrymen, they'd blow their tops! For every day—and all day—is inspection day at Belmont.

Not a single drop, square, stick, grain or ingot "gets by" the critical eye of Belmont metal experts in anything short of perfect condition...at any stage of production.

And Belmont quality is exceeded only by Belmont service—the result of 59 years of "falling in" on time.

Better buy Belmont...for both!



Belmont

SMELTING & REFINING WORKS, INC.
200 BELMONT AVENUE - BROOKLYN 7, NEW YORK

"Putting Mettle into Metals Since 1896"

For More Information Circle No. 367 on Inquiry Card—Page 17

IBM Shows Experimental "All-Transistor" Computer

An experimental "all-transistor" calculator with a computing unit about one-half the size and requiring only 5% as much power as a comparable vacuum tube unit was demonstrated recently at IBM's new Poughkeepsie, N. Y., research laboratory.

In presenting the calculator for its first public demonstration, W. W. McDowell, vice-president in charge of research and engineering, pointed out that it is an experimental machine. "This is merely one of the many experimental projects on which our engineers are working and it is one more step toward the computers and data processing machines of the future." Mr. McDowell explained.

The new machine is comparable in capacity to IBM's type 604 electronic calculator, of which over 2,000 are in use, it was said. The 604 uses 1,250 vacuum tubes. While their speeds are similar, shown side by side the two machines provided a sharp contrast in size. This experimental engineering model is believed to be the first fully-operative transistorized computer complete with automatic input and output.

More than 2,200 transistors are used in the machine. A number of these are of a design developed by the company's own engineers to meet the operating characteristics required in computer circuits.

In addition to reducing the size of the machine, transistors effect a 95% reduction in the power requirements of the electronic unit, eliminating the need for a bulky power supply and forced air cooling of components.

Because transistors have a much longer life than vacuum tubes, IBM expects that the necessary maintenance of machines using them will be significantly reduced from that of vacuum tube machines of today.

Printed wiring was incorporated into the design of the new calculator to simplify production and maintenance, and greatly reduce space requirements. The model contains 595 printed wiring panels, on which the transistors are mounted.

Another important phase of the company's electronic research program, deals with magnetic core storage devices. Magnetic cores are tiny, doughnut-shaped objects that can "remember" information indefinitely, and recall it in a few

millionths of a second. In this research, IBM has carried on work that originated at Massachusetts Institute of Technology.

Also demonstrated—in the company's type 101 electronic statistical machine—was the first practical use ever made in a business machine of a gas tube counter, an unusual device perfected by IBM engineers.



This tube gives reliable performance where the counting speeds required are faster than those possible with electro-mechanical devices, yet not so fast that expensive vacuum tube counters are needed. It operates on the principle of allowing a special type of gas to glow within separate sections of the tube to designate digits. Several of the electronic statistical machines equipped with this counter are currently undergoing field tests.

De-Rusting Precision Parts Without Dimensional Change

Oakite Products, Inc., has developed a cleaning material for alkaline de-rusting of precision parts where acid embrittlement and dimensional change must avoided. In addition to removing rust and heat scale from ferrous metals, this material has also proved effective in certain cases in descaling heat-treated titanium. The product is a heavy-duty, offwhite powder that may be used in hot or cold solutions. It may also be used with direct current to remove deep-pitted rust, or reverse current to remove heat scale. Among some of the many advantages claimed are that it will not attack sound metal, will not cause hydrogen embrittlement and does not require special treatment such as stainless steel tanks.



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Sandvik Swedish cold-rolled, high carbon strip steel is available:

- Precision-rolled in thicknesses from .001"
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- In special analyses for specific applications
- In more than 800 stock sizes
- · Annealed, unannealed or hardened and tempered
- · Polished bright, yellow or blue
- With square, round or dressed edges

Phone, wire or write your nearest Sandvik office for further information or technical help.

SOME SANDVIK SWEDISH SPECIALTY STRIP STEELS—Steel for Textile Machine Parts. Band Saw Steels; Metal Band, Wood Band and Butcher Band • Camera Shutter Steel • Clock and Watch Spring Steels • Compressor Valve Steel • Doctor Blade Steel • Feeler Gauge Steel • Knife Steels • Razor Blade Steel • Reed Steels Shock Absorber Steel • Sinker Steel • Spring Steels • Trowel Steel • Vibrator Reed Steel, etc.



FREE! SANDVIK CATALOG

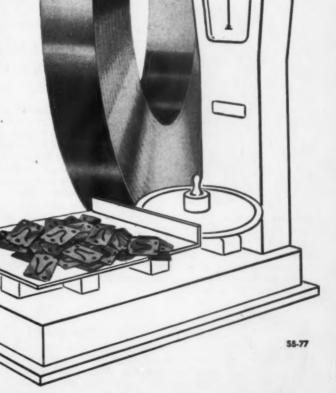
Gives thickness, width, hardness, types of edges and weight in pounds per hundred feet. Also useful conversion tables. Write on your letterhead, for your free copy.



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MOTOR TOOL LIVE CENTERS. DEPEND UPON McGILL FOR HIGH RADIAL ACCURACY

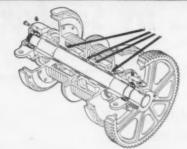


Multirol SE Bearings, press fitted into Motor Tool Live Centers, "account for accuracy and long life of these units." They take the radial loads of lathe, screw machine and grinder operation without radial looseness or play.

ROUSSELLE PRESSES USE MULTIROL SE BEARINGS **EXCLUSIVELY FOR 8 YEARS**



Service Machine Co., Chicago, have used Multirol SE Bearings exclusively for over 8 years on their Rousselle heavy duty presses. Two SE Bearings mounted side by side, support and carry the heavy fly wheel load on all 15, 25, and 40 ton models.







MULTIRUL® SE Bearings

CARRY HEAVIER LOADS MORE ECONOMICALLY

On Baldwin-Lima-Hamilton Cranes and Shovels

The heavy cable loads on the Hoist Drum Shaft of Cranes and Shovels require a heavy duty bearing that occupies a minimum of radial space. The Multirol SE Bearing provides the answer to dependable performance in this application. Its trouble-free operation under heavy loads with long life expectancy has effected considerable savings in service charges for users of Lima Cranes, Shovels, Draglines and Pull Shovels.

By packing more load carrying capacity into a smaller radial space, Multirol Bearings permit use of a larger shaft and a heavier drum section. This eliminates the tendency for the crushing load of the cable to bind the shaft and reduces shaft deflection.

Baldwin-Lima-Hamilton has been using Multirol Bearings for many years and depends on such design advantages as lubrication reservoirs above roll ends, one piece outer and roller retaining end shoulders, the sealing effect of close end shoulder and shaft clearance against foreign particles, etc. To get the same de-pendable and long lasting performance in your products, always specify McGill Bearings.



BEARING SELECTION GUIDE

A new 140-page Bearing Selection Guide, complete with 30 pages of vital engineering data, has been released by the McGill Manufac-turing Co. Ask for Catalog No. 52.

McGILL®— Precision Bearings McGILL MANUFACTURING COMPANY, INC. Valparaiso, Indiana 400 N. Lafayette Street,

For More Information Circle No. 369 on Inquiry Card-Page 17



PYRENE and C-O-TWO, world-renowned manufacturers of approved fire protection equipment, are now unified under the same management to give you the finest and most complete line on the market today...

- built-in fire detecting systems that quickly respond to smoke, heat or flame...
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For More Information Circle No. 370 on Inquiry Card-Page 17

Personalities



IN THE NEWS

Stephen J. Morris has been appointed General Purchasing Agent of Morse Chain Co., Detroit, a Borg-Warner in-



S. J. Morris

dustry. Mr. Morris, who has been Purchasing Agent at the Morse Chain Ithaca, N. Y., plant will head purchasing operations for both Detroit and Ithaca. Prior to joining Morse in 1948, he held purchasing and sales executive positions with Trent Tube, Inc.

R. C. Swanton, Director of Purchases, Arms & Ammunition Division, Olin Mathieson Chemical Corp., is one of the feature speakers at the 353rd meeting of the National Industrial Conference Board being held at the Conrad Hilton, in Chicago, November 18th. Mr. Swanton will address the gathering on "Industrial Commodities".

Thomas H. Gould, Assistant Director of Purchases for the Maytag Co., Newton, Iowa, has retired after 29 years of service.

CBS-Columbia, radio and television division of the Columbia Broadcasting System, New York, has named Albert J. Frankel as Vice President in Charge of Purchases. Mr. Frankel, former CBS-Columbia Purchasing Agent, succeeds M. A. Gardner.

The appointment of Jay M. Mc-Gookey, Jr., as Purchasing Agent at Hinde & Dauch, Sandusky, Ohio, has been announced. A member of H&D



Jay M. McGookey, Jr.

for 21 years, Mr. McGookey has been in the purchasing department for 19 years. He started as an invoice clerk, progressed to purchasing accountant in 1937, and became assistant purchasing agent in 1946.

Frank J. Loughlin, Purchasing Agent of the Erie Railroad in Cleveland, has recently celebrated his 50th year with the company. Mr. Loughlin started with Erie in 1904, a boy of 14, as a messenger in the purchasing department office in New York City.

John W. Stallings has been appointed Director of Purchases for Atlas Plywood Corp., Boston. He will head all



J. W. Stallings

purchasing functions for the entire Atlas organization and will headquarter in Boston. He has been with Atlas for eight years, and has held several key positions in administration and manufacturing.

Wudi Dreifuss, formerly Purchasing Agent for the Pittsburgh branch of the Federated Metals Division, American Smelting and Refining Co., is now Purchasing Agent of Pitt Metals Co., Inc., Pittsburgh.

Pabst Brewing Co., Chicago, has named Lou Saksefski as Purchasing Agent, succeeding the late W. P. Aitken. Mr. Saksefski joined the Pabst organization as a member of the purchasing department of the Pabst plant in Milwaukee.

(Please turn to page 252)



announcing...







Long wear and complete comfort...without any "break-in"!



Here's the Riegel Drivers glove . . . the perfect glove for truckers, farmers—
everyone who drives rolling equipment. The tough, flexible top grain cowhide
— specially tanned to eliminate stiffness—makes it soft and pliant. That's
why there is absolutely no irritating "break-in". What's more, it is made
in three sizes to insure perfect fit . . . all in Gunn pattern, with pull strap and
continuous thumb. No doubt about it, Riegel's Driver offers comfort and
long wear—the combination your customers want. Here's the drivers glove to put
your sales in high gear . . . contact your nearest distributor today
for further information!

Riegel

RIEGEL TEXTILE CORPORATION • 260 Madison Avenue • New York 16, N. Y.

Atlanta · Boston · Charlotte · Chicago · Cleveland · Dallas · Jackson (Miss.) · Los Angeles · Pittsburgh · St. Louis

For More Information Circle No. 371 on Inquiry Card—Page 17 NOVEMBER, 1954

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2 Heads are better than I



...You and your SIMONDS DISTRIBUTOR

Together you make a **Top Team**when it comes to handling your
Industrial Supply Problems
Quickly...Efficiently...Economically

YOUR SIMONDS DISTRIBUTOR runs a business that's set up to fit hand-in-glove with yours . . . to perform functions and services which would be an extra burden to you. Are you taking full advantage of all these services he offers? . . .

- Your Simonds Distributor carries ample stocks that would tie up your own funds . . . enables you to keep your inventory low.
- Your Simonds Distributor is your nearest and quickest source of supply . . . 24 hours a day . . . ready to deliver what you want when you want it.
- Your Simonds Distributor simplifies your purchasing procedure . . . handles your needs for many items, all under one order, one bill, one payment . . . saves you time, trouble and expense all along the line.
- Your Simonds Distributor is an up-to-the-minute source of information on new equipment, materials, parts... and on new techniques of engineering, production, maintenance.
- What's most important, your Simonds Distributor "knows his book" on Simonds Products for cutting metal, wood, plastics, paper, etc. And he knows how to make sure you get the best results out of the finest line of products made today . . . the Simonds red-trademarked line that's 100% quality-controlled from steel to finish grinding.



For quick deliveries large or small Give your Simonds Distributor a call



Darrell D. Simpson has been named Manager of Purchases for the O. A. Sutton Corp., Wichita, Kansas. He was



D. D. Simpson

formerly associated with the Deepfreeze Appliance Division of Motor Products Corp., N. Chicago, for six years. He served as Manager of Purchases, Purchasing Agent and Buyer for that organization.

Consolidated Edison Co., New York, has named William J. Murphy as Fuel Agent. As Fuel Agent and head of the Fuel Department for the New York



W. J. Murphy

utility, Mr. Murphy is responsible for the purchase and delivery to Con Edison stations, plants and storage areas of about \$80,000,000 annually in coal and oil. He has been with Con Edison since 1920 and was appointed Assistant Fuel Agent in 1952.

The appointment of Larry Ignasiak as Chief Purchasing Agent has been announced by Flying Tiger-Slick Airlines, Los Angeles. He was one of the first employes of the company, joining the original operation in February, 1946.

C. R. Murray has been appointed Purchasing Agent for Southern Pacific, Pacific Electric and affiliated companies at Los Angeles. He joined SP in 1927 and became Assistant to the General Purchasing Agent in 1950. Also, H. H. Hamilton, former chief clerk of the Southern Pacific purchasing department, has been named Assistant to the General Purchasing Agent at San Francisco. Mr. Hamilton joined SP in 1937 and has been in the purchasing department since 1939.

Mohawk Airlines has named Glenn W. Irish as Purchasing Agent. He was previously with Ozark Airlines.



F. Parcella

Congress Drives Division, Tann Corp., Detroit, has named Miss Florence Parcella as Purchasing Agent. Miss Parcella has been in the purchasing field for about eight years and has been Assistant Purchasing Agent of Congress Drives for the past six months. She is a member of the Women's Division of the Purchasing Agents Association of Detroit.

Clyde Cocke, Norfolk and Western Purchasing Agent for the past 30 years, has been named the railway's General Purchasing Agent. Mr. Cocke started with N&W in 1909, as a messenger. In 1922 he became Chief to the Purchasing Agent, and Assistant Purchasing Agent, and Assistant Purchasing Agent in 1924. Four months later he was named Purchasing Agent, the youngest purchasing agent on any U. S. railroad at the time.

Following a meeting of its board of directors, the Western Electric Co., New York City, manufacturing unit of the

Bell Telephone System, announced the election of Gus F. Raymond as Vice President-Purchasing and Traffic. Mr.



G. F. Raymond

Raymond began his career with the Bell System at Western Electric's Hawthorne (Chicago) works in 1924 as an instrument maker in the meter maintenance department, becoming department chief in 1928. By 1943 he was superintendent of the special apparatus . products and inspection branch at the Chicago plant. In 1948, when the company's new telephone manufacturing plant was completed in Indianapolis, he was appointed its manager and held that post until his transfer, in 1952, to New York as manufacturing division comptroller. In 1953, Mr. Raymond became personnel director.

Perkin-Elmer Corp., Norwalk, Conn., has created a new manufacturing division known as the Vernistat Division.



E. W. Dunstan

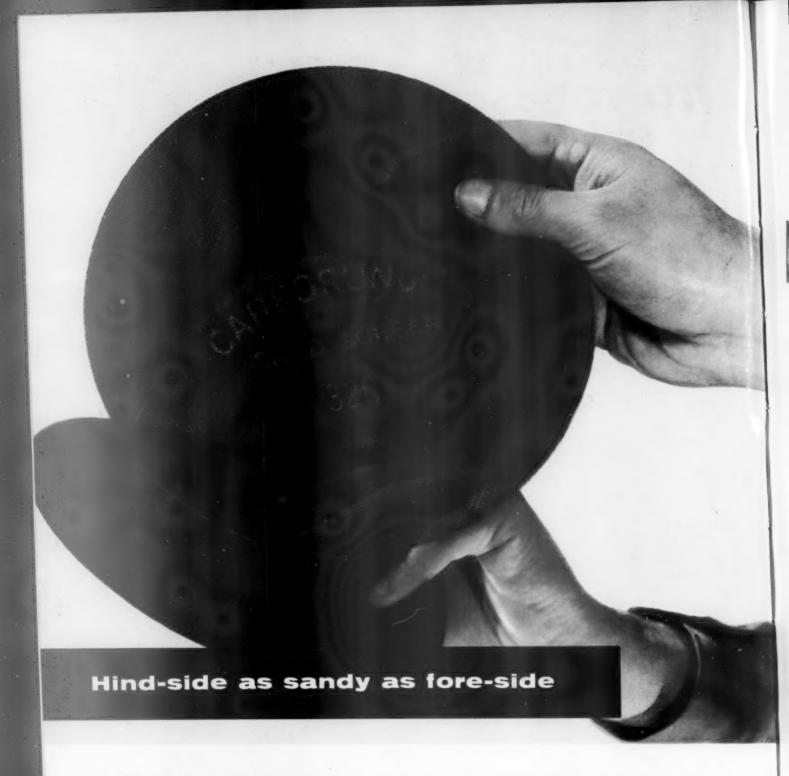
Eugene W. Dunstan, formerly Director of Purchasing at Perkin-Elmer, has been named General Manager of the new division.



This is a "sand pattern" produced by the sound of a grinding wheel as it is vibrated on CARBORUNDUM'S Sonic Comparator. This scientific instrument tests the hardness of wheels for precision grinding. Skilled operators hear-and see on the oscilloscope-the sound...grade with pinpoint accuracy from 250 to 300 wheels per hour. This is just one of many scientific tests applied to grinding wheels by CARBORUNDUM-to make sure you get absolutely uniform production from wheel to wheel. For precision grinding wheels that match the performance of modern grinding machines, it pays to rely on your CARBORUNDUM Distributor or Salesman. He offers expert counsel, complete stocks, prompt service. Call him today.

Through product quality and application "know-how"

continually puts more sense in your abrasive dollar



Use both sides of SAND SCREEN for sanding and finishing...do from 7 to 15 times more work with one sheet or disc than you can with conventional coated abrasives. Removed material flows through the open mesh-you sand faster, longer, with much less loading. Use SAND SCREEN wet or dry...for hand or machine finishing. Fold it-tear it to any convenient size. CARBORUNDUM'S SAND SCREEN Discs and FASTCUT Pad 85 Assembly slash time and costs on wet sanding of prime coats. On many operations

of sanding flats and slight contours, no adhesives are necessary. Cut sheets fit oscillating or vibrating sanders... do a terrific job wherever loading and glazing is a problem. Get samples today from your CARBORUNDUM Distributor or Salesman.

Through product quality and application "know-how"

REGISTERED TRADE MARK

continually puts more sense in your abrasive dollar

PROVE IT TO YOURSELF!

Tuffy



Any Test You Can Devise Will Prove It's the Toughest Sling You Can Buy!

The Best Way To Convince A Man of anything is to let him prove it to himself! That's why we are willing to send you a sample 3-Ft. Tuffy Sling, absolutely free. There's nothing to buy, no obligation of any kind!

"Torture Test" This Sling and see for yourself how its patented, machine-braided wire fabric construction enables it to stand up under conditions that would cause ordinary rope slings to fail.

Loop It, Knot It, Kink It, Jerk It! Put this Tuffy Sling to the most grueling tests you can think of! When you see how its extra flexibility lets it resist kinking, its ease of straightening out kinks without material damage, and its unparalleled stamina under stresses and strains of all kinds—then we know you'll be convinced that Tuffy is the toughest in the business!

Your Tuffy Distributor is Set Up For Speedy Service!

"Fast!" That's the word your Tuffy distributor is accustomed to hearing. He knows how important it is to get you the replacement slings and rope you want, when you want it. He's equipped to handle your hurry-up orders and there's a Union Wire depot or warehouse nearby to back him up. For "right now" delivery, call your Tuffy distributor!

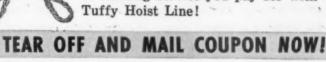


Specialists in High Carbon Wire, Wire Rope and Braided Wire Fabric

Tuffy, HOIST LINE

Matches Tuffy Slings in strength and wearability...stays on the job longer to reduce operating costs! Users consistently report Tuffy Hoist Line is the best they've ever used when it comes to flexibility and downright toughness!

No Complicated Specifications! Ordering is easy, because all you need to specify is the length, diameter and the name — Tuffy Hoist Line. Get full measure of hoisting service you pay for with Tuffy Hoist Line!



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put real sales appeal in your products with JELLER BRASS CO. forgings

Windows in this modern new Florida hospital supplied by Valley Metal Products Co.—subsidiary, Mueller Brass Co.

The aluminum hardware used on all the windows in this modern hospital is a good example of the sales appeal that can be built into a product with Mueller Brass Co. forgings. These forgings are smart in design, practical in operation, and low in cost. They can also be produced in natural bronze or chrome finish depending on the desires of the architect or builder.

All Mueller Brass Co. forgings have a dense, close-grained structure with a high tensile strength. Weight savings up to 40% are possible in the design of parts because of the close tolerances to which they can be produced. Less scrap and longer tool life result from the easy machinability of forged parts. Mueller Brass Co. is completely equipped to produce brass, bronze or aluminum forgings to your specifications. For complete details, write us today.

MUELLER BRASS CO.

PORT HURON 21, MICHIGAN

The new Director of Purchases for Emerson Radio and Phonograph Corp., New York, is Irwin M. Koenigsberg.



I. M. Koenigsberg

Manager of the purchasing department since 1952, Mr. Koenigsberg takes over the post vacated by Robert J. Bahr. Mr. Koenigsberg has been associated with Emerson purchasing since 1946.

William F. Smith has been made Purchasing Agent of the Mycalex Corp. of America, Clifton, N. J. Before joining



W. F. Smith

Mycalex, Mr. Smith was an expediter with the Electric Boat Co., Bayonne, N. J., and production control manager and Purchasing Agent of Torsion Balance Co., Clifton.

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For More Information Circle No. 376 ←on Inquiry Card—Page 17



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ne,

INDUSTRIAL Developments



A new cold draw section, which extends length limitations on rods and tubes and triples capacity for producing heat exchanger tubes, is now in operation at the Huntington, W. Va., works of The International Nickel Co., Inc., New York. The unit comprises a building extension 350 ft. long by 108 ft. wide, a draw bench capable of drawing some tubes and rods up to 85 ft., and a gas-fired annealing furnace 220 ft. in overall length.

The property and business of Natural Products Refining Co., Jersey City, N. J., acquired by Pittsburgh Plate Glass Company last August, has been transferred to Columbia-Southern Chemical Corp., Pittsburgh, a whollyowned subsidiary of Pittsburgh Plate.

C. C. McMillan Industrial Supplies, Portland, Ore., has been formed to manufacture Kemaloid, a new boiler and cooling water treatment.

Construction of a new unit to produce more than 60,000,000 lbs of chemicals per year by the Oxo process has been completed at the Texas City, Texas, plant of Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp., New York. The unit is now producing iso-octyl alcohol, primary decyl alcohols and primary tridecyl alcohols.

A quarter of a million dollars expansion of local plant facilities at Delta-Star Electric Division, H. K. Porter Co., Inc., Pittsburgh, has been completed. It includes 15,000 sq. ft. of additional assembly floor space, the modernization of structural steel fabricating plant and the installation of new automatic fabricating equipment.

A large-scale ammonium nitrate plant, located in Lawrence, Kansas, was recently opened. It is owned by the

Cooperative Farm Chemicals Association, an affiliate of the Consumers Cooperative Association, Kansas City, Mo.

B. F. Goodrich Chemical Co., Cleveland, has been licensed by Elastomer Chemical Corporation to engage in development work with Elastomer's patented continuous foam vinyl process.

Steel Service Manufacturing Co., Steubenville, Ohio, has purchased the steel equipment line formerly manufactured by Advance Metal Products Corp., Chicago.

West Coast Tool & Supply Co., Los Angeles, has been purchased by the Townsend Co., New Brighton, Penna. The company, which manufactures flexible ejection chutes used in weapons for aircraft and armored ground vehicles, will be continued as a wholly-owned subsidiary.

Erie Resistor Ltd. of Canada, a subsidiary of Erie Resistor Corp., Erie, Penna., has opened a new plant and office at Trenton, Ont., between Toronto and Montreal.

The purchase of a tract of land near Atlanta, Ga., for the construction of additional manufacturing facilities, has been announced by Philip Carey Mfg. Co., Cincinnati.

A fully automatic slabbing machine has been installed at the Chanute, Kansas, refinery of Warwick Wax Co., Inc., a subsidiary of Sun Chemical Corp., Long Island City, N. Y.

A 76-oven, by-products coke battery recently went into operation at the Campbell works of The Youngstown Sheet and Tube Co., Youngstown, Ohio. The battery has a daily capacity of 1,250 tons of coke, or about 450,000 tons per year.

Modernization of the 84-inch plate mill of Alan Wood Steel Co., Conshohocken, Penna., has been completed and the revamped mill is again in operation. The renovation involved additions to existing buildings and the installation of new equipment at a cost of nearly \$3,300,000. One feature of the modernized mill is a new 55-foot rotary hearth slab heating furnace, the first ever installed in a plate mill operation. The company anticipates an increase in plate production of about 20% annually.

The Schirmer-Dornbier Pump Co., Cleveland, has been acquired by the Wayne Pump Co., Salisbury, Md.

The manufactured equipment and complete supply line of railroad products of the Kellogg Switchboard and Supply Co., Chicago, is now being sold through the Railroad Industry Sales Organization of Federal Telephone and Radio Co., Clifton, N. J. Both Kellogg and Federal are divisions of International Telephone and Telegraph Co.

Mercast Corp., New York, and Guest, Keen and Nettlefolds Ltd., London, have jointly formed a British company, Mercast (Great Britain) Ltd., to license the use of the Mercast process to firms in the U. K. and the British Commonwealth (excluding Canada).

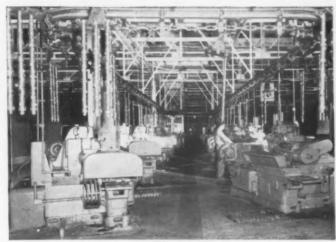
The General Ceramics Corp., Keasbey, N. J., has acquired Advanced Vacuum Products, Inc., Stamford, Conn. The new plant will be operated as a division of General Ceramics.

A new company has been formed for the engineering, manufacture and sale of induction melting and heating equipment. Called Inductotherm Corporation, it is located at 620 E. Glenolden Ave., Glenolden, Penna.

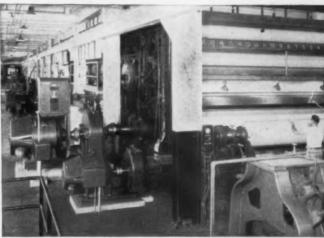
(Please turn to page 262)

THE Tools of Automation

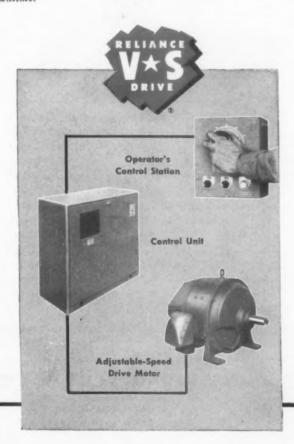
INCREASE PROFITS IN EVERY INDUSTRY



In a camshaft production line, Reliance V*S Drive system provides stepless, easily adjustable speeds for fast, precision machining. Optimum cutting speeds extend tool life, reduce downtime.

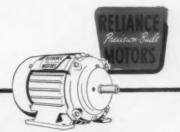


On a high-speed newsprint machine, the Reliance V*S Drive system provides unsurpassed accuracy and dependability, maintaining precise speed relationships and correct draw adjustments between all sections.



Greater machinery output... improved production efficiency... both result in increased profits. And both result from using the Tools of Automation: Reliance electric motors, adjustable-speed drives, electronic controls, and applied engineering. They're setting new standards for low cost production in *every* industry.

These Tools of Automation can most efficiently lower your costs, because they're designed and applied to *your* specific situation. Reliance Application Engineers are backed by nearly 50 years' experience in perfecting the drive systems that can help you attain the degree of automatic production you require. For further information, write for the new booklet, "The Tools of Automation".

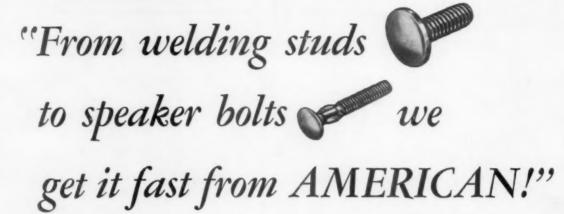


RELIANCE ELECTRIC AND ENGINEERING CO.

Sales Representatives in Principal Cities

1056 Ivanhoe Road, Cleveland 10, Ohio

For More Information Circle No. 378 on Inquiry Card-Page 17





On-time delivery is only part of the job here at American. Just as important to you is the price you pay for every fastener.

We don't pretend to be miracle men. But on many a job, we have been able to provide the happy combination of good delivery and a lower cost per unit.

Try us. Send us prints of your fasteners. Tell us how many you need. We'll do the rest, at no obligation to you.

> To reduce your assembly costs, to avoid the "slips" that can ruin any fine finish ... ask for prices of American Phillips Screws.

> > marks the spot
> > . . . the mark of extra quality

AMERICAN SCREW CO.

PHILLIPS HEADquarters
WILLIMANTIC, CONNECTICUT

Plants at Willimantic, Conn. and at Norristown, Pa. Warehouse and office at Chicago Office, Detroit, Michigan





Bridgeport Aluminum Bronze, Alloy 707, makes better screw machine parts. It machines 50 to 75% as fast as Free-Turning Brass ... has a tensile strength of 85,000 psi when annealed and offers a low co-efficient of friction for minimum galling and wear.

To use the advantages of Bridgeport Aluminum Bronze for your production, call your nearest Bridgeport Sales Office. There is a Bridgeport Alloy for almost every screw machine application—ask our Sales Office how you can use Bridgeport's Technical Service to help you select the alloy best suited to your application and to give you most efficient production.



Write for your copy of Bridgeport's Manual on Aluminum Bronze and other high-strength alloys.

One of the many Bridgeport Metals with High I.Q. (Inner Quality) for economical fabrication and improved products.

BRIDGEPORT BRASS COMPANY + BRIDGEPORT, CONNECTICUT



Serving Industry With a Nationwide Network of Conveniently Located Sales Offices and Warehouses
Mills in Bridgeport, Conn., Indianapolis, Ind., and Adrian, Mich.
In Canada: Noranda Copper and Brass Limited, Montreal



A Complete LINE! CLEVELAND CONTAINERS

EFFICIENT ECONOMICAL ATTRACTIVE

- PLAIN ALL-FIBRE CAN... Bottom firmly glued on, and top assembled loosely.
- SLIP COVER CAN... Metal bottom seamed on, slip cover top of tin plate.
- FRICTION PLUG CAN . . .
 Metal top ring with tight fitting metal lid; metal bottom.
- 4. TURN-SIFTER TOP CAN
 ... Friction plug type bottom
 and metal revolving perforated top.
- 5. SCREW TOP CAN ... Metal

threaded ring with screw cap top; metal bottom.

- METAL END TELESCOPE CASE... Three or two-piece construction. Available also with paper caps or ends curled and disced.
- UNIT PACK CAN . . . Metal bottom seamed on, metal top shipped separately for seaming on by packer. Civilian and military uses.
- 8. CONVOLUTE LABELED CAN . . . Available in round, square or oblong shapes.

LINERS... Moisture and grease resistant and anti-corrosive liners can be provided for additional protection.

LABELS... Strip labels, pre-printed wrappers, direct printing, or plain color wraps.

CLEVELAND TUBING

We manufacture tubing of every kind, type and size in chipboard, jute or kraft... in diameters up to 24"... in lengths and wall thicknesses as desired. Also all electric grades of tubing.

Write The Cleveland Container plant nearest you for a copy of our new PACKAGING folder.

WHY PAY MORE?

For the best . . . call CLEVELAND!

CLEVELAND CONTAINER (A. 6201 BARBERTON AVE. CLEVELAND 2, OHIO

• All-Fibre Cans • Combination Metal and Paper Cans
• Spirally Wound Tubes and Cores for all Purposes

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PLANTS AND SALES OFFICES: Cleveland, Chicago, Detroit, Memphis, Plymouth, Wisc., Ogdensburg, N. Y., Jamesburg, N. J., tos Angeles • ABRASIVE DIVISION at Cleveland. SALES OFFICES: Grand Central Terminal Bidg., New York City; Washington, Gas Light Bidg., Washington, D. C.; West Heartford, Conn., Rechester, N. Y. Cleveland Container Conada, Ltd.: PLANTS AND SALES OFFICES: Toronto and Prescott, Ont. • SALES OFFICE: Mentreal.

The acquisition of the Sheet Aluminum Corp., Jackson, Mich., has been announced by Mueller Brass Co., Port Huron, Mich. Sheet Aluminum will be operated as a wholly-owned subsidiary of Mueller.

Two new paper specialty plants of Bemis Bro. Bag Co., St. Louis, have been completed and put into operation. One of the plants is at Crossett, Ark., and the other at Albion, N. Y. Both facilities are geared to manufacture paper covers and liners for packaging articles of unusual shapes and sizes.

The Thermostat Division of Robertshaw-Fulton Controls Co., Bridgeport, Conn., has started construction of a new \$2 million plant in nearby Milford. It will be a one-story structure containing 180,000 sq. ft. of floor space. Of steel frame construction, with brick and glazed tile exterior walls, the building will house the company's offices, engineering department and laboratory in addition to the manufacturing facilities.

Marcus Transformer Company has completed the consolidation of its manufacturing operations in its new plant in Rahway, N. J.

A formaldehyde producing installation has recently been completed in Charlotte, N. C., by Reichhold Chemicals, Inc., White Plains, N. Y. The unit will have an annual capacity of 25,000,000 lbs. and is the fourth formaldehyde plant operated by Reichhold in the U. S.

Scovill Manufacturing Co., Waterbury, Conn., has moved its Los Angeles warehouse and sales office to 6464 E. Flotilla St.

A new sales office and warehouse has been opened in Union City, N. J., by the Colson Corp., Elyria, Ohio.

The Sandusky Foundry and Machine Co., Sandusky, Ohio, has put into production its new high-frequency melting furnaces. This now makes possible the production of centrifugal castings in a wide range of both ferrous and nonferrous compositions and alloys. The company has also recently modernized its metallurgical laboratories.

The Fernald, Ohio, plant of Virginia-Carolina Chemical Corp., Richmond, Va., is now in full-scale production of phosphoric acids and sodium polyphosphates. The million dollar installation will produce all grades of phosphoric acids, sodium tripolyphosphates and tetrasodium pyrophosphates, in all granulations and specifications.

Dumont Aviation Associates, Long Beach, Calif., have announced the acquisition of controlling interest in Doddridge Screw Corp., Los Angeles. Wherever you're located

YOU CAN GET WALDES TRUARC RINGS IN A MATTER OF HOURS

... and whatever you make, there's a Waldes Truarc Ring designed to save you material, machining and labor costs:

basic types				for taking up end-play			
BASIC		INVERTED		BOWED		BEVELED	
#5000 (internal)	#5100 (external)	#5008 (internal)	#5108 (external)	#5001 (internal)	#5101 (external)	#5002 (internal)	#5102 (external)
Tapered design principle permits rings to maintain constant circularity and pressure against bottom of groove. Inverted construction uniform protrud while maintaining larity when install to the construction of the constructio		ling shoulders constant circu-	shoulders silient take-up of end-play.		Beveled construction permits rigid take-up of end-play.		
for radial assembly				self	-locking 1	ypes	٠.,
E-RING	CRESCENT	INTERLOCKING	CIRCULAR SI	ELF-LOCKING	TRIANGULAR SELF-LOCKING	TRIANGULAR NUT	GRIP-RING
#5133 #5131 (bowed)	#5103 (external)	#SIO7 (external)	#5005 (internal)	#5105 (external)	#5305 (external)	#5300 (external)	#5555 (external)
Radially applied. Provides large shoulder on small shaft diameter. Bowed version pro- vides take-up of end-play.	Applied radially over shaft. Secure against impact and vibration.	Two-piece ring applied radially. Secure against extremely high r.p.m.'s and heavy thrusts.	Recommended for blies exposed to	Requires no groove. r permanent assem- relatively moderate ts or vibrational	Low cost retainer. Makes possible tight assemblies free of end-play on relatively soft shafts.	Flattens under torque. Secures equal load distri- bution. Replaces lock washer on screw.	Applied axially on shaft. Requires no groove. Exerts considerable frictional hold against axial displacement.

WALDES RETAINING

RINGS

Waldes Kohinoor, Inc., 47-16 Austel Place, L.I.C. 1, N. Y.

WALDES TRUARC RETAINING RINGS AND PLIERS ARE PROTECTED BY ORE OR MORE OF THE FOLLOWING U.S. PATENTS: 2.392.347;
2.392.049; 2.416.052; 2.420.921; 2.420.341; 2.439.785;
2.441.046; 2.459.165; 2.423.380; 2.420.305; 2.487.002;
2.447.002; 2.459.105; 2.000.081 ARD OTHER PATENTS PERDING

ONE OF THESE AUTHORIZED DISTRIBUTORS IS CONVENIENT TO YOU:

ALA. Birmingham, Moffatt Brgs.
ALASKA Anchorage,
Bearing Eng. Co. of Alaska
ARIZ. Phoenix, E. D. Maltby Co.
ARK. Little Rock,
Southern Brg. Service, Inc.
CAL. Los Angeles,
Edw. D. Maltby Co., Inc.
Maywood, Edw. D. Maltby Co., Inc.
Oakland, Bearing Specialty Co.
San Diego, E. D. Maltby Co., Inc.
San Brancisco, Bearing Spec. Co.
CANADA
Lyman Tube & Brgs., Ltd.

IOMA Davenport, Standard Brgs. Co.
Sioux City, Standard Brgs. Co.
KY. Louisville,
Kentucky Ball & Roller Brg. Co.
Madisonville, Bearings & C. Co.
AMASS. Boston, Bearings Spec. Co.
Pittsfield, Bearing Distributors
MICH. Detrait, Michigan Brg. Co.
MINN. Minneapolis, San Francisco, Bearing Spec. Co.
CANADA
Lyman Tube & Brgs., Ltd.
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New Glasgow, Nova Scotia;
Toronto, Ontario; Vancouver,
British Columbia; Winnipeg,
Manitoba.
COL. Denver,
Bearings Svc. & Supply Co.
CONN. Bridgeport, Bobker Brgs.
FLA. Jacksenville, Moffatt Brgs. Co.
HAWAII Honolulu,
Bearing & Equipment Co. Ltd.
IDAHO Idaho Falls,
Bearings Svc. & Supply Co.
ILL. Chicage, Berry Brg. Co.
Decatur, Illinois Brg. Co.
East St. Louis, Neiman Brgs. Co.
Marion, Bearings Service Co.
Peoria, Illinois Bearing Co.
Rockford, Berry Bearing Co.
Nammond, Berry Bearing Co.
IMO. Evansville, Bearing Svc. Co.
Jammond, Berry Bearing Co.
Indianapolis, Service Supply Co.
South Bend, Bearings Service Co.

IOWA Davenport, Standard Brgs.
Des Moines, Standard Brgs. Co.
Sioux City, Standard Brgs. Co.
KY. Louisville,
Kentucky Ball & Roller Brg. Co.
Madisonville, Bearings Svc. Co.
La. Baton Rouge, Dixie Brgs., Inc.
Shreveport, Bearings & Trans. Co.
MD. Baltimore, Moffatt Brgs. Co.
MASS. Boston, Bearings Spec. Co.
Pittsfield, Bearing Distributors
MICH. Detroit, Michigan Brg. Co.
MINN. Minneapolis,
Industrial Supply Co.
MO. St. Louis, Neiman Brgs. Co.
NEB. Omaha,
Precision Bearing & Trans. Co.
N. J. Cilton, Bobker Brgs., Inc.
Highland Park, Bobker Brgs., Inc.
Newark, Bobker Brg. Co., Inc.
Trenton, Moffatt Bearings Co.
N. Y. Buffalo, Syracuse Brg. Corp.
L. I. City, Bobker Brgs., Inc.
New York City, Bobker Brgs., Inc.
Niagara Falls, Syracuse Brg. Corp.
Rochester, Syracuse Bearing Cor.
Troy, Bearing Distributors
Utica, Syracuse Bearing Corp.
N. C. Charlotte, Moffatt Brgs. Co Troy, Bearing Distributors
Utica, Syracuse Bearing Corp.
N.C. Charlotte, Moffatt Brgs. Co
Greensboro, Tennessee Brgs., Inc.
OHIO Akron, Bearings, Inc.
Canton, Bearings, Inc.
Cincinnati, Bearings, Inc.
Cleveland, Bearings, Inc.
Columbus, Bearings, Inc.
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Hamilton, Bearings, Inc.
Lima, Bearings, Inc.
Lima, Bearings, Inc.
Mansfield, Bearings, Inc.
Youngstown, Bearings, Inc.
Youngstown, Bearings, Inc.
OKLA. Tulsa,
Clark Brg. Spec. & Supply Co.
OKLA. Tulsa,
Clark Brg. Spec. & Supply Co.
ORE. Portland,
The General Tool Co.
PA. Erie, Bearings, Inc.
Johnstown, Bearings, Inc.
Johnstown, Bearings, Inc.
York, Bearings, Inc.
York, Bearings, Inc.
TENN. Kimgsport,
Tennessee Brgs., Inc.
Memphis,
Southis, Bearings, Vic. Inc. Inoxville, Tennessee Brgs., Inc. Memphis, Southern Bearing Svc., Inc. YEXAS Dallas, Bearing, Chain & Supply Co. Houston, Cunningham Bearing Co. UTAH Salt Lake City, Bearings Service & Supply Co. VA. Richmond, Moffatt Brgs. Co. WASM. Seattle, Bearing Engineering & Supply Co. Yakima, Yakima Bearing Co. W. VA. Charleston, Bearings, Inc. Huntington, Bearings, Inc. Wheeling, Bearings, Inc. Wheeling, Bearings, Inc. Wis. Appleton & Milwaukee Wisconsin Bearing Co. Wisconsin Bearing Co.
Racine, Wisconsin Bearing Co.

Factory engineering representatives available in each area

POUR
DEPENDABLE
SOURCE FOR
QUALITY
NAME PLATES
AT THE
RIGHT PRICE

Chicago Thrift-Etching Corporation

Our experience, skilled craftsmanship plus the latest and best equipment enable us to provide standout identification of your products at the right price. You can depend on us for plates that reflect the quality of your products.



GET OUR QUOTATION Send a rough sketch, blueprint or sample, with specifications, for quotation—without obligation to you. Or write us fully about your requirements in name plates, instruction plates, dials, panels, scales, etc. Write for free book, "Etched or Lithographed Metal Products of Quality," containing full color examples.

CHICAGO THRIFT-ETCHING CORPORATION

1555 NORTH SHEFFIELD AVE., CHICAGO 22, ILL., DEPT. C

Metal Name Plates, Dials and Panels, Etched or Lithographed • Etched Metal Scales, Clock Dials, Trophy Plates, Plaques, Advertising Specialities • Etched Metal Panels for elevator and architectural uses • Coin Banks • Lithographed or Screened Platic Name Plates or Dials • Aluminum Anodizing by the Alumilite Process.

SUBSIDIARY OF DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

Follansbee Metals, a division of Follansbee Steel Corp., Pittsburgh, is now serving its New England customersfrom its new depot in Wallingford, Conn., and has closed its previous regional headquarters in Fairfield, Conn. The new \$750,000 structure is handling, hot and cold rolled steel products, terne metal and sheet metal specialties.

Cooper Alloy Foundry Co., Hillside, N. J., has changed its name to Cooper Alloy Corporation.

A major plant expansion will bring two large forging presses to the Vernon, Calif., works of the Aluminum Co. of America, Pittsburgh. The hydraulic presses are of 8000 ton and 1500 ton capacities. The entire program will involve nearly \$4,000,000. The 8000 ton press, a three cylinder design, is scheduled to be in operation by fall of 1955. The 1500 ton press is scheduled for production by early 1955.

NEWS OF YOUR SUPPLIERS

American Buff Co., Chicago, has named Morris Tychman as sales representative in the Chicago area.

Gar Wood Industries, Wayne, Mich., has announced that B. F. Whitbread is now product sales manager for Gar Wood hydraulic hoists and dump



B. F. Whitbread

R. Miller

bodies. Mr. Whitbread has been with Gar Wood for almost 20 years. At the same time, it was announced that Ross Miller had been made sales manager of Gar Wood's St. Paul Hydraulic Hoist, Mattoon, Ill.

Milton A. Nix has been made a special sales representative for Robert Gair Co., Inc., New York. He will be located at Gair's Ohio Corrugated Box Division in Cleveland.

Cushman Chuck Co., Hartford, Conn., has named W. H. Jones as a representative. Mr. Jones will cover southern New Jersey, Delaware and Virginia.

F. W. Lawrence has been made a special sales representative in development work for custom design welding fasteners and special threaded and headed products for National Screw & Mfg. Co., Cleveland.

AT THE FRONTIERS OF PROGRESS YOU'LL FIND ..



The Airco Duograph #48 cutting machine equipped with Electronic Tracer*. Note simple, sturdy construction and centralized control station.

Basic tracing area 48" x 51"
Additional tracing table increases length to 131".

*optional equipment (in place of manual tracer) at additional cost

see it in operation at the Metal Show...Airco Booth #341

The NEW AIRCO 48 DUOGRAPH

the first rectilinear shape cutting machine that gives you the accuracy you want...at a price you can afford

In producing close-tolerance parts, the Airco #48 Duograph is as accurate as heavier, more expensive pantograph-type machines, Cuts are sharp-edged, free of slag or scale. Cuts up to four 4-foot circles at once. Solenoid operation and centralized controls save gas, speed work. Ask your Airco Representative for illustrated booklet containing full details—or write to the address below.

\$3450

(complete machine with menual tracer)

featuring:

- 48" x 51" cutting area (one table)
- up to 4-torch operation
- centralized controls
- gas-saving solenoid valves
- accurate cuts

Choice of 3 tracers. Use the sure, accurate Airco Electronic Tracer, the magnetic tracer, or manual tracer, according to type of work. Tracer equipment is interchangeable.



Divisions of Air Reduction Company, Incorporated, with offices in most principal cities

Air Reduction Sales Company Air Reduction Pacific Company

Represented Internationally by Airco Company International

Foreign Subsidiaries: Air Reduction Canada, Limited, Cuban Air Products Corporation

Products of the divisions of Air Reduction Company, Incorporated, include: AIRCO — industrial gases, welding and cutting equipment, and acetylenic chemicals • PURECO — carbon dioxide, liquid-solid ("DRY-ICE") • OHIO — medical gases and hospital equipment • NATIONAL CARBIDE — pipeline acetylene and calcium carbide • COLTON CHEMICAL COMPANY — polyvinyl acetates, alcohols and other synthetic resins.

For More Information Circle No. 384 on Inquiry Card-Page 17



MODERNIZING YOUR PLANT? Get the work and storage space you need with standard HALLOWELL Unit Benches

Keep bench tops uncluttered, keep tools and parts at hand with these Hallowell benches. Spacious cabinets and drawers provide ample storage space, save many steps and much time. And HALLOWELL Unit Benches may be used individually or in continuous line anywhere in your plant. For complete information, consult your HALLOWELL distributor or write STANDARD Pressed Steel Co., Jenkintown 31, Pa.



1. Unit Benches 2. Stools & Chairs

HALLOWELL SHOP EQUIPMENT DIVISION





Here's the easy, low-cost answer to your problem of replacing worn out or broken hose lines and rigid tubing. A small kit of versatile Aeroquip 1525 bulk hose and SOCKETLESS fittings enables you to make your own lines for practically every plant

application. Hose line assembly is easy. Just cut the hose to the required length and push on the SOCKETLESS fittings. There's no waste, no complicated inventory. Call your Aeroquip distributor today or write for information!



AEROQUIP CORPORATION, JACKSON, MICHIGAN

LOCAL REPRESENTATIVES IN PRINCIPAL CITIES IN U.S.A. AND ABROAD • AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

For More Information Circle No. 386 on Inquiry Card-Page 17

JADE-LITES SPEED PRODUCTION AT PHILADELPHIA THERMOMETER CO.

Lustra Jade-Lite Fluorescent Tubes reduce glare, eyestrain, reports General Mgr. L. W. Scanlan

PHILADELPHIA, PA.—The Philadelphia Thermometer Company in this city has discovered a simple new way to speed production, according to L. W. Scanlan, General Manager.

The new method consists of a Lustra Jade-Lite lighting system recently installed in the production department in place of the formerly used slimline and fluorescent tubes. "The old lighting system," says Mr. Scanlan, "caused an annoying amount of glare. At the suggestion of our local Lustra man, we installed Lustra Jade-Lite Fluorescent Tubes and immediately both glare and eyestrain were substantially reduced, with the end result that production has been substantially speeded."





THE LUSTRA JADE-LITE. Reports from the Philadelphia Thermometer Company and other industries throughout the country, indicate its superiority for precision work.

AFTER CONFERRING WITH A LUSTRA MAN, the Philadelphia Thermometer Company decided to replace ordinary slimline and fluorescent tubes in production department with Lustra Jade-Lites. Result was elimination of eyestrain, speed-up of production.

Lustra Corporation reports similar results with their lighting in plants throughout the country and makes this statement to all plant-men: "You can definitely improve lighting efficiency and production in your operation with the Lustra Lighting Line."

For information write: Lustra Corp., Dept. P-11, 111 Water Street, Brooklyn 1, N. Y.



For More Information Circle No. 387 on Inquiry Card-Page 17

Kaiser Metal Products, Inc., Bristol, Penna., has renamed its Aircraft Division the Fleetwings Division. At the same time, it was announced that J. J. Boericke, formerly a contract manager at the Bristol firm, is now head of the newly-formed stainless steel project group to handle contracts involving the production of stainless steel items.



J. E. Kuppe

James E. Kuppe has been named general sales manager of Carver Pump Co., Muscatine, Iowa.

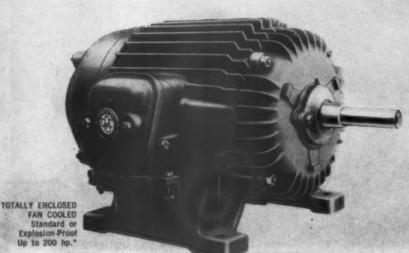
The new district manager of the western New York territory for Niagara Machine & Tool Works, Buffalo, N. Y., is Clifford R. Boeckler. Mr. Boeckler will serve Niagara and Erie counties in New York and Erie County in Pennsylvania.



J. E. Smith

Bryant Chucking Grinder Co., Springfield, Vt., has appointed Joseph E. Smith, Jr., as manager of the Gage and Spindle Division of the company.

Tools Inc., Philadelphia, has been named as sales representative for the area by Lodding Inc., Worcester, Mass. In Baltimore, Lodding has appointed Robert S. Williams, Jr., as representative. And, representation in Poughkeepsie, N. Y., and environs will be by J. L. Petz Co., Pleasant Valley.



Naturally, world-famed ACEC electric motors are hard to beat when it comes to quality, dependability, and ease of maintenance. And when it comes to PRICE - initial cost and maintenance cost - an ACEC motor is first, last and always the best motor buy in the United States.

Behind every ACEC motor stands a guarantee of world-wide service, backed in the United States and Canada by the ACEC Electric Corporation's more than 300 distributors, service shops and warehouses. Insist on ACEC, and you'll insist on quality and service - quality you can depend on, service that is guaranteed.

Three-phase ACEC fractional and integral horsepower electric motors rated from ¼ to 200 hp* and built to all NEMA specifications - are available from warehouse stock throughout the country.







ore motor for less

- TYPE P (Vertical Hollow Shaft) up to 200 hp.*
 OPEN (DRIP-PROOF) fractional and integral hp up to 200 hp.*
- 3. "SADI" GEARED MOTOR, planetary type.
 Up to 15 hp.
 4. TYPE "C" FACE MOUNTED up to 60 hp.

office-warehouse nearest you

CHICAGO, ANDOVER 3-3531 HOUSTON, FAIRFAX 0338 LOS ANGELES, MADISON 6-4421

ACEC Motors are sold and serviced in the U.S.A. by

ACEC ELECTRIC CORPORATION

Main Office: 40 East 49th Street, New York 17, New York Branches: 423 East 3rd Street, Los Angeles 13, Calif. Belcan Electric Sales Ltd., Montreal, Can. • Industrimex, S.A., Mexico, D.F. Sales Offices and Representatives: Boston, Buffalo, Chicago, Cleveland, Detroit, Houston, Milwaukee, Minneapolis, Orlando, Philadelphia, Portland (Ore.), San Francisco, Savannah.



MOTORS



For More Information Circle No. 389 on Inquiry Card-Page 17

Robert A. Maxwell, with the B. F. Goodrich Co., Akron, Ohio, since 1933, has been named senior representative of the company's Detroit district equipment sales organization.

The appointment of Grand Air-Hydro Division, K. William Ostrom Co., Inc., Philadelphia, as exclusive representative in the Philadelphia and Baltimore areas, has been announced by Fluid Controls, Inc., Mentor, Ohio.

Clark-Hopkins Equipment Corp.,
Philadelphia, is now a distributor for
the Buda Division,
Mfg. Co., Milwaukee. Clark-Hopkins
will cover eastern Pennsylvania,
southern New Jersey and Delaware.



L. A. DePolis

L. A. DePolis has been appointed general sales manager of the Industrial Truck Division of Clark Equipment Co., Battle Creek, Mich. Mr. DePolis was formerly sales manager of Ross Carrier Co.. acquired by Clark last year.

A new St. Louis sales zone has been added to the sales organization of Selas Corp. of America, Philadelphia. Robert M. Breckenridge will head the new zone.

Charles J. Daley has joined the sales department of the Roll Formed Products Co., Youngstown, Ohio.

Edward C. Hamm has been made vice president and director of sales for the Colson Corp., Elyria, Ohio.

Thomas F. Morrison, Arthur A. Domin, Robert L. Fritz and Leslie G. Drescher have joined the Chicago sales staff of Sun Supply Co., a division of Sun Chemical Corp., Long Island City.

Metals & Controls Corp., Attleboro, Mass., has named John M. Durkee to handle special assignments in market and sales research.

The Ohio Crankshaft Co., Cleveland, has named L. C. Schweitzer as assistant general manager of the company's Tocco Division. He was formerly Chicago district manager of Tocco.

For More Information Circle No. 390 on Inquiry Card—Page 17→ PURCHASING a SPRING



Divisions of ASSOCIATED SPRING CORPORATION

WALLACE BARNES COMPANY

> BRISTOL CONNECTICUT

THEWILLIAM | RAYMOND D.GIBSON COMPANY

1800 CLYBOURN AVE CHICAGO 14,

Manufacturing **COMPANY**

> CORRY PENNSYLVANIA

BARNES-GIBSON -RAYMOND

40300 PLYMOUTH RD. PLYMOUTH, MICH. B-G-R COOK THAJG

MICHIGAN

10 PROVEN SOURCES COAST TO COAST

F. H. MAHROSS AND SONS CO.

BRISTOL

OHIO DIVISION 1825 EAST FIRST ST

DIVISION 341 E. ERIE ST.

SEABOARD Coil Spring Div. GARDENA, CALIF.

IN CANADA - The WALLACE BARNES CO., Ltd., Hamilton,

SEE OVER









WALLACE BARNES COMPANY

> BRISTOL CONNECTICUT

THEWILLIAM | RAYMOND | BARNES-D.GIBSON COMPANY

1800 CLYBOURH AVE

Manufacturing

YHARMOD

CORRY, PEHNSYLVANIA

GIBSON -

40300 PLYMOUTH RD. PLYMOUTH, MICH. B-G-R COOK PLANT

ANN ARBOR

F. N. MANROSS AND SONS CO.

BRISTOL

OHIO DIVISION BAYTON, OHIO DUNBAR BROTHERS COMPANY

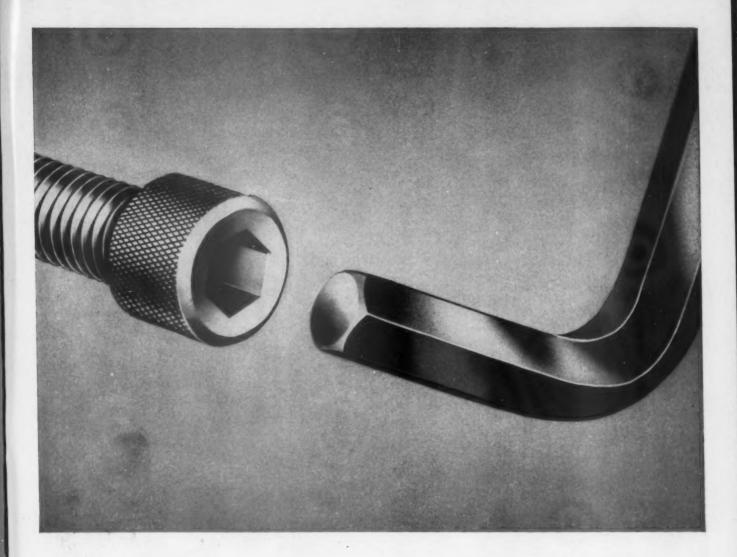
MILWAUKEE DIVISION 341 E. ERIE ST.

SEABOARD Coil Spring Div GARDENA, CALIF

IN CANADA

The Wallace Barnes Co. Ltd. Hamilton, Ontario

SEE OVER



Bristol Hex Socket Cap Screws assure speedier, easier, tighter fastening

Bristol hex socket cap screws meet every production and maintenance requirement.

They spin easily into place, fit perfectly, and wrench up tightly, even in hard-to-get-at places. They take the wrench without skidding, too, so there's no danger of marring surfaces. Disassembly is just as easy. And Bristol's hex socket screws can be tightened far beyond the point where shock or vibration will loosen them.

This extra holding power results from the hex

socket design, and Bristol's careful control over materials and manufacturing methods. Standard hex socket cap screws are made of alloy steel specially hardened. Other special metals and finishes may also be supplied. All Bristol screws are A.S.A. approved and precision threaded either National Coarse or National Fine.

Ask for Bristol hex socket cap or set screws in sizes from 0 wire to one inch in diameter at your industrial distributor's.

BRISTOL'S SOCKET SCREWS



THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.



"Featherweight" 85% Magnesia was installed on the ducts, housings and lines of these "making" machines in the plant of Behr-Manning Corporation, a division of Norton Company. Insulation contractor—Armstrong Cork Company.

Heat saved ... Money saved with K&M high temperature insulations

K&M insulations keep costs down by holding heat losses to an absolute minimum. You can always count on dependable "Featherweight" 85% Magnesia Insulation to provide exceptionally efficient heat conservation.

Made of 85% basic carbonate of Magnesia and asbestos fiber, "Featherweight" 85% Magnesia effectively insulates piping and equipment with temperatures up to 600°F. Used with K&M Hy-Temp insulation, its range is extended to 1900°F. This insulation combination lasts the life of the equipment it serves, withstands

moisture, vibration and frequent temperature change.

New and now available is "Featherweight" Water-Resistant Magnesia insulation for temperatures up to 450°F. It is used underground where severe water exposure may damage the insulation or on indoor steam heated lines and equipment where high humidity and moisture are present.

Your K&M distributor is an experienced applicator who will gladly give you details about these money-saving insulations. Or write directly to us.

KEASBEY & MATTISON COMPANY . AMBLER . PENNSYLVANIA

Nature made asbestos . . . Keasbey & Mattison has made it serve mankind since 1873





Efficiency, safety, dependability, long-lasting and trouble-free service are cardinal virtues of standardized switchboards.

The reason is that they embody all the latest features in design and operation.

Approved by the Underwriters' Laboratories, Inc., for label service, standardized switchboards are built of standardized pre-assembled units, incorporated in standardized enclosures.

All switchboards are factory assembled and shipped ready for connection to main and branch

circuit cables. Sections are so designed that they can be used singly or grouped. Removable end walls permit the addition of sections on either side.

If you want to add to the efficiency, safety and economy of plant operations, then be sure to include a standardized switchboard in your modernization or new plant plans.

See your nearest @ representative listed in Sweet's industrial construction or plant engineering files for additional information.

THREE TYPES FROM WHICH TO CHOOSE

(A) shutlbrak

a safety type switchboard designed for frequent and heavy use.

CAPACITIES:

30 to 1200 amps., 250 volts AC or DC and 600 volts AC 2, 3 and 4 poles. Rotary type operating handles furnished on 30-200 amp. capacities. Straight handles on all others.

Klampswitchfuz and snufarc

a combination disconnect switch and fuse device.

CAPACITIES:

- (A) Klampswitchfuz, 30 to 600 amps., 250 volts AC or DC, 2, 3 and 4 poles, single or double throw.
- (A) Snufarc, 30 to 200 amps., 600 volts AC 2, 3 and 4 poles.

(A) circuit breaker

a safety type switchboard with thermal-magnetic type circuit breakers.

CAPACITIES:

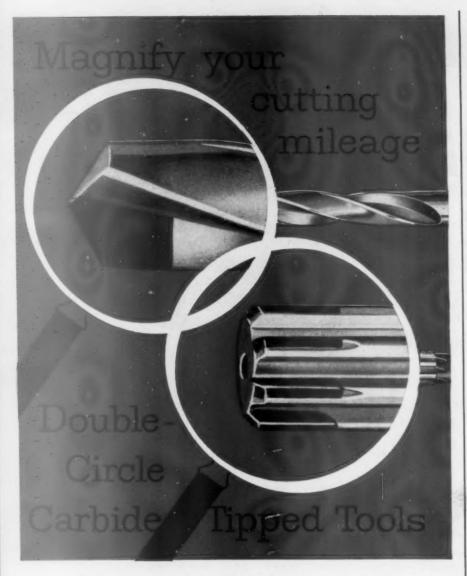
15 to 600 amps., 250 volts AC or DC and 600 volts AC, 2 and 3 poles. (Air circuit breakers are used for larger capacities.)

Frank Adam Electric Co.

BOX 357, MAIN P. O. . ST. LOUIS 3, MO.

makers of:

busduct • panelboards • switchboards service equipment • safety switches load centers • Quikheter



An enlarged view of Double-Circle carbide inserts can only give you a minor part of the story of their cutting magic. These splendid tools have a "beneath-the-surface" story that is the true key to their superiority. In a word, this is the vast experience of Chicago-Latrobe in cutting tool engineering, in selection and testing of materials and in precision manufacturing methods. It is not surprising that wise buyers everywhere look to Chicago-Latrobe's complete line for the tools that make cutting operations faster, smoother, easier. For greater cutting mileage, always specify Double-Circle carbide tipped drills and reamers.

YOU'LL GET -OUICK SERVICE-

FROM A CHICAGO-LATROBE DISTRIBUTOR





DRILLS • REAMERS • COUNTERSINKS • COUNTERBORES • CARBIDE TOOLS • SPECIAL TOOLS
For More Information Circle No. 394 on Inquiry Card—Page 17

Sutton Engineering Co., Bellefonte, Penna., has appointed Donald E. Russell as sales manager of its new Hydraulic Equipment Department.

Forest E. Wall is now the district representative in the Michigan area for Kurz-Kasch, Inc., Dayton, Ohio.

Solventol Chemical Products, Inc., Detroit, has named Ben Ray as manager of technical field service, Industrial Chemical Sales Division.

Seneca Coal & Iron Corp., New York City, is the exclusive eastern sales agent for the Laurel mine of the Cedar Creek Coal Co., Clarksburgh, W. Va.



R. W. Bowles

Robert W. Bowles has been made manager, specialty steel sales, for the Kaiser Steel Corp., Oakland, Calif.

L. B. Harmon, a veteran of 24 years experience in the traffic and transportation fields, has been appointed assistant general traffic manager of Kaiser Aluminum & Chemical Corp., Oakland, Calif. Mr. Harmon previously was with Montgomery Ward & Co., Chicago.

Warwick Chemical Co., a division of Sun Chemical Corp., Long Island City, has appointed Albert H. Gower as general sales manager.

The Mueller Brass Co., Port Huron, Mich., has announced five promotions in its sales department. Robert L. Gibbs, former head of the wholesale distributing division, is now assistant general sales manager; Elbert A. Fairchild, previously manager of the sales promotion department, is now an assistant to the general sales manager; Paul L. Craft, assistant sales manager of the industrial division, has been named manager of that department; Charles R. Black, one-time assistant manager of the wholesale distributing division, assumes the post of manager of the division; and Richard S. Thompson, former assistant in the government contracts department, takes over as assistant to Mr. Black in the wholesale distributing division.



.. when you're buying paint

Just face it! The cost of labor represents at least 80% of the total bill for a painting job. And what you pay for labor . . . which so greatly affects your costs . . . depends on whether the painter's arm is up or down.

When it's up, he's painting, when it's down, he's dipping. And the more it's up, the less time and less money it takes to do the job.

That's why paint buyers who figure things out with good, sound, down-to-earth logic insist on famous Barreled Sunlight paints. There's less dipping per gallon. Every brushful of Barreled Sunlight goes farther . . . covers more area . . . yes, and also hides better, looks better and lasts longer. This is the result of Barreled Sunlight's exceptional quality . . . made possible through secret formulae and processes which no other paint manufacturer has ever been able to duplicate.

Of course to get this quality you might have to pay a few pennies more per gallon for famous Barreled Sunlight paints. But with Barreled Sunlight's unusual capacity for thinners you can even save money on paint. And the money you save on labor . . . well, just try Barreled Sunlight and see!

Write today for our full line "Engineered Color" Catalog.



Barreled Sunlight

BARRELED SUNLIGHT PAINT COMPANY, 18-K Dudley St., Providence, R. L.

For More Information Circle No. 395 on Inquiry Card-Page 17



Relief... for a production pain

What's your particular "ache"? Looking for ways to cut costs...improve production...speed plant operations...reduce maintenance costs?

Here's a prescription that can provide an effective solution for you... the specialized service offered by your Chain Belt Field Sales Engineer or Distributor and the outstanding performance of Chain Belt Equipment:

for example: If you want smooth, efficient conveying of metal parts, packages, bottles, cans or cartons, Rex TableTop Chain is your answer. Rugged simplicity, with a carrying surface that's as smooth as a metal belt, TableTop assures economical materials handling.

for example: If you're looking for more efficient, economical chain drives, you'll find your answer in the complete Chain Belt line. High speeds or low, heavy or light loads, there are Chain Belt Chain and Sprocket that exactly fit your service requirements.

for example: If misalignments are causing trouble and premature breakdowns in your plant, check Tru-Flex Roller Chain Couplings and Shafer Self-Aligning Roller Bearings. These efficient units can probably correct your troubles... save time, trouble, money.

Whatever your needs...drive chain, conveyor and elevator chain, complete elevators, belt conveyors, feeders, roller bearings, buckets or sprockets, you'll relieve those production pains by looking to Chain Belt. See your local Field Sales Engineer, your Chain Belt Distributor or write direct to Chain Belt Company, 4764 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT COMPANY

District Sales Offices and Distributors in all Principal Cities

For More Information Circle No. 396 on Inquiry Card-Page 17

MAINTENANCE MEN PREFER O-B VALVES BECAUSE . . .

they can be repacked UNDER FULL PRESSURE

Packing in O-B valves, even when they are installed on live steam lines, can be replaced without shutting down the lines. Maintenance becomes easier, and quicker-since costly interruptions of production and service can be avoided.

With an O-B globe valve fully open, the bevelled collar on the stem seals tightly against the bottom of the center piece. O-B gate valves also can re-

packed under full pressure.

Further simplifying the maintenance of O-B valves is the long life of the high grade split ring Jewett-type packing used. It has greater body than ordinary asbestos and graphite packing and lasts

Good packing which can be easily replaced when necessary is one of many features that have brought O-B bronze valves into the maintenance man's favor. They're available in sizes up to three inches, for up to 200 pounds working steam pressure--also with ends for soldering and with rising or non-rising stems. The complete line is available from your Ohio Brass distributor.

Ohio Brass Company Mansfield, Ohio





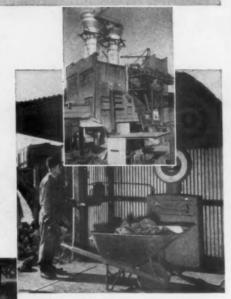
Okio Brass Valves

BRONZE GLOBES, ANGLES, GATES AND CHECKS FOR INDUSTRIAL AND DOMESTIC SERVICE

4444-6

CONTROLS ASSURE QUALITY IN FOREST CITY GRAY IRON CASTINGS

• The kind of iron that goes into your castings when they are made by Forest City Foundries depends on more than meets the eye in this busy cupola-charging yard. There's no guesswork here. Raw materials such as pig iron, scrap iron, etc., are carefully weighed on automatic recording scales. In addition, our technicians conduct many important tests and controls to assure the quality of iron you specify, of which an example is the melting control report shown below.



Because the casting quality of iron depends to a considerable degree on the temperatures of the iron when melted and when poured into the molds, those temperatures are carefully controlled. Photograph at left shows the iron temperature being taken at the cupola spout with an optical pyrometer. Such readings are recorded every 15 minutes on various melt records to assure proper control of uniform casting quality.

These are only a few of the many controls that assure the high quality of Forest City castings.

To see how you can profit by having your gray iron castings made by Forest City Foundries, send us sketches, blue prints or samples for quotations.

DAILY MELTING REPORT CUPOLA No. IL DATE 2-15 TONS CHARGED 151								
MATERIAL CHARGED			BILICON		CARBON			
KIND	%	Lbs.	ÇE.	Lbs.	%	Lbs.		
Northern Pig	30	750	2.35	17.63	4.00	30.00		
Silvery Pig	7	175	8.38	14.67	7.00	3.50		
Steel	18	450	0.06	0.27	.55	2.47		
Remelt	34	850	2.35	19.98	3.39	28.82		
Purch. Scrap	11	275	2.70	6.05	3.70	8.80		
Brigate	EL 3	Risece.	_	3.00				
Totals	100	200		61.60		73.59		

FOREST CITY FOUNDRIES Company TELEPHONE TOWER 1-5040

Allen N. Aiman is now a sales engineer in the Cincinnati territory for The Parker Appliance Co., Cleveland. He will handle Parker o-rings and related rubber products. Mr. Aiman will cover Kentucky and the southern parts of Indiana and Ohio.

Donald R. Hoover will cover the metropolitan Chicago area for Vulcan Stamping & Mfg. Co. and Vulcan Tin Can Co., both of Bellwood, Ill.

Varna Chemical Company has moved to 717 Union Commerce Bldg., Cleveland 14, Ohio.

Pittsburgh Plate Glass Company has moved its Manhattan district office to 579 Fifth Avenue, New York City.

Reichhold Chemicals, Inc., is now in its new executive offices at 525 N. Broadway, White Plains, N. Y.





W. P. Dutrow

R. A. Fulghum

The Automotive Division of Wagner Electric Corp., St. Louis, Mo., has appointed W. P. Dutrow as assistant branch manager in New York, and R. A. Fulghum as branch manager in Omaha.

Lawrence D. Toolan is now assistant sales manager of Cordley & Hayes, New York.

The Industrial-Medical Gas Division, Liquid Carbonic Corp., Chicago, has announced the following as authorized distributors: Chrismer-Hull Co., Columbus, Ohio; B & A Air Products, Inc., Doylestown Township, Penna.; High Welding Co., Lancaster, Penna.; Triangle Engineering Co., Upland, Penna.; Irish Welding Supply Co., Buffalo, N. Y.; Blackhawk Welding Supply Co., S. Beloit, Ill.; Lamb Welding Supply Co., Cedar Rapids, Iowa; and The Atlas Co., Cincinnati.

The new branch manager of the Rochester, N. Y., office of Sterling Electric Motors, Inc., Los Angeles, is Richard L. Bedell.

R. T. Collier Corp., Los Angeles, has announced the addition of Harold R. Seykota to its organization as sales manager.

Verne E. Smith is now director of sales for the **Drake Mfg. Co., Chicago.** He has been with **Drake for** eight years.



How we opened the door to lower costs for Ford

Two hinges on every Ford door. Six screws and 12 washers for each hinge.

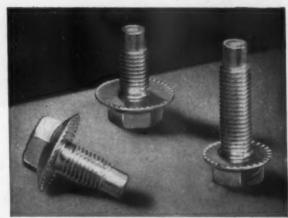
Did this present an opportunity for cost reduction? An RB&W "fastener engineer" thought so. And after careful analysis and time

studies Ford engineers agreed.

The solution: RB&W Hex SPIN-LOCK screws to fasten the hinge to the door, eliminating the need for washers. And special wide-flange Hex SPIN-LOCK screws for attaching the hinge to the frame, doing away with more washers. The wide flange is necessary to cover an elongated hole in which the hinge moves to permit accurate alignment.

Result — parts requirements are cut by two thirds, assembly is simplified, purchasing and inventory costs are lowered. And RB&W SPIN-LOCK screws hold those door hinges tight for good.

We will be glad to send an RB&W man around to check up on your fastening operations. Every problem is different, of course, but RB&W has a fastener for just about every job. If you need a "special", as Ford did, we'll design and make it for you. Write RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY, Port Chester, New York.



FASTER ASSEMBLY, reduced costs were the pay-off, using RB&W designed wide-flange SPIN-LOCK screws (left) for door hinge. Other SPIN-LOCKS (right) hold hinge on door. SPIN-LOCK screws can't loosen because ratchet-like teeth lock into surface and hold tight.

3.10



109 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

Plants at: PORT CHESTER, N.Y.; CORAOPOLIS, PA.; ROCK FALLS, ILL.; LOS ANGELES, CALIF. Additional sales offices at: ARDMORE (PHILA.), PA.; PITTSBURGH; DETROIT; CHICAGO; DALLAS; SAN FRANCISCO. Sales agents at: PORTLAND, SEATTLE. Distributors from coast to coast.

You can spot productive hands by the



Behr-Manning abrasives boost production all along the line...



Handy rolls of BEHR-MANNING METALITE Cloth offer the machinist his choice of tear lengths for each need.

company they keep ...

Surface preparation gets a with Behr-Manning

IN the hands of your operators, these flexible, even-cutting SPEED-WET® METALITE® FIBRE DISCS produce top finishes in record-breaking speed. The abrasive, the bond and the backing all combine to insure this performance. Put them to the test.

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Long-lasting BEHR-MANNING Abrasive Belts assure a fast, more aggressive rate of cut on stock removal jobs.



Polishing narrow recess in die, with a BEHR-MANNING METALITE Cloth SPIRABAND® on portable tool.



Write for the Disc Grinding Bulletin

It's full of good hints for better abrasive disc usage.

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- VG A COATED ABRASIVES
 - A SHARPENING STONES
 - A PRESSURE-SENSITIVE TAPES

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For More Information Circle No. 400 on Inquiry Card-Page 17



WITH ANTI-CORROSIVE STAINLESS STEEL FASTENINGS



SAVE INITIAL COST!

Superior production capacity and know-how means lower costs from Anti-Corrosive, America's oldest and largest firm dealing exclusively in stainless steel fastenings!



SAVE TIME!

IN STOCK inventory of more than 9,000 varieties and sizes of stainless fastenings means *immediate* delivery of your needs! Streamlined service on special orders, too!



SAVE OPERATING COSTS!

Anti-Corrosive's consistent top quality protects your production schedules, eliminates rejection headaches, means trouble-free operation!

Write for FREE Catalog 54D, the one complete reference handbook to stainless steel fastenings! Varieties, sizes, prices and discounts at a glance!





ANTI-CORROSIVE METAL PRODUCTS CO., INC.

Castleton-on-Hudson, New York

For More Information Circle No. 401 on Inquiry Card-Page 17

Graybar Electric Co., Inc., New York, has announced three new promotions. H. D. Epps is now district operating manager at Pittsburgh; C. A. Rettenmayer becomes district operating manager at Minneapolis; and F. P. Hoeffler takes over the post of district operating manager at St. Louis.

W. L. Nelligan has joined the sales staff of the National Radiator Co., Johnstown, Penna., and has been assigned to the firm's Boston office.



R. G. Robbins

Hubbard and Co., Pittsburgh, has announced the appointment of Richard G. Robbins as vice president and general sales manager of its Pittsburgh and Chicago plants, covering the eastern and mid-western territories.

The appointment of Albert W. Agnew as district manager for the area served by the company's El Segundo and Berkley, Calif., field offices has been announced by Vickers, Inc., Detroit. Mr. Agnew will be in charge of all Vickers industrial and mobile products sales in Los Angeles, San Francisco, San Diego, Salt Lake City and Phoenix areas.

McKinney Manufacturing Co., Pittsburgh, has established a new central sales region and named Russell J. Hamilton as regional sales manager. Under Mr. Hamilton, in the area, will be H. Thomas Patton, Jr., covering western Pennsylvania, West Virginia, southeastern Ohio, eastern Kentucky and northwest Maryland; Glenn K. Rosenfelder for parts of western Pennsylvania and northeastern Ohio; R. K. Maier in southwestern Ohio, western Kentucky and Indiana; and Robert M. McWade in Michigan and northwestern Ohio.

Diamond Expansion Bolt Co., Inc., Garwood, N. J., has named Charles W. Fuhrer as assistant sales manager.

Paul H. Mougey has been placed in charge of aluminum pigment sales in the New York and Newark district sales offices of the Aluminum Company of America, Pittsburgh.

For More Information Circle No. 402 on Inquiry Card—Page 17→

PURCHASING

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Fan - efficient, non-spark-Here's the inside story of ing fan. New aerodynamic design for more effective cooling. **Inner bearing cartridges** -lock bearings to end the NEW L.A. Line bracket and form explosionquenching seal along shaft. Indestructible cast-aluminum rotor—dynamical-ly balanced with fan for smooth, quiet operation. ... your BEST enclosed Stator - prewound stator core utilizes Formvar wire insulated with a new Alkyd Asphalt Resin insulating varnish. and explosion-proof motor BUY **End bracket and housing** -heavy cast iron for great-er rigidity and resistance to cor-Locked bearing - an extra-quality feature. Inner race locked to shaft - outer race to end bracket. Limits end play positions rotor. Modern styling a motor with pleasing, modern lines that add to the appearance of your product or plant, Large grease chamber factory lubricated for of attention-free service. Rotating labyrinth seals - keep dirt and moisture out of bearings — grease in. Knock-off lugs - permit easy disassembly of motor, Totally enclosed fan-cooled motor Lead identification-permanent, positive lead identification spacer in conduit box. 11 New split conduit box This is the completely new L.A. totally enclosed fan-cooled and explosion-proof motor. Every feature in this new line is designed - rugged cast-iron conduit box diagonally split for easy confor easier installation, longer service life, less maintenance and nection.

attention, You get the full benefit of the new NEMA standards in a smaller, more functional, completely modern design.

Your nearby Louis Allis Sales Engineer can show you all the reasons why these motors perform better and longer on your tough jobs - why they give you maximum resistance to corrosion wherever you need this extra protection. Call him today.



THE LOUIS ALLIS CO.

MILWAUKEE 7, WISCONSIN



Vertical NEMA

We specialize in SPECIAL MOTORS and PROMPT DELIVERY, TOO



NEMA D-flange motor



This big liner and seat ring were centrifugally cast of bronze "G" metal for use in a large bydraulic valve.

BIG in size TOPS in dependability

REGARDLESS of size, you can put complete trust in Shenango centrifugal castings—rough, semimachined or precision finished.

Because of Shenango's centrifugal casting process, you receive a uniform, close-grain, pressuredense metal free from weakening imperfections. Other features include greater resistance to wear, better elongation and increased strength. All in all, Shenango castings, ferrous or nonferrous, are your best buy for any type of severe service.

The large liner and seat ring shown above are only two of the many varieties made by Shenango. For additional information on various size bushings, liners, rings, rolls, drums or almost any annular or symmetrical shape, address...

SHENANGO-PENN MOLD COMPANY

Centrifugal Castings Division

Dover, Ohio

Executive Offices: Pittsburgh, Pa.

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COPPER, TIN, LEAD, ZINC BRONZES . MONEL METAL
ALUMINUM AND MANGANESE BRONZES . NI-RESIST . MEEHANITE METAL

For More Information Circle No. 403 on Inquiry Card-Page 17

Fletcher L. Munger, formerly western sales manager of Gilman Paper Co., Chicago, has been named assistant to the vice president in charge of sales. Mr. Munger will be in the company's New York City headquarters.

Emjay Maintenance Engineers, Rutherford, N. J., has appointed Horace G. Erb as representative for the Maryland-central Pennsylvania area.

The newly appointed western sales manager for Electrofilm, Inc., North Hollywood, Calif., is Max Willemin.

Robertshaw-Fulton Controls Co., Greenburg, Penna., has named two new assistant vice presidents and sales managers. Frank H. Post, formerly sales manager of the firm's Thermostat Division, is now assistant vice president





F. H. Post

A W Rock

and sales manager of the Cooking Appliance Controls Division. Alton W. Beck, one time sales manager of the Grayson Controls Division, is now assistant vice president and sales manager of the Heating Appliance Controls Division.

The Dabar Industrial Sales Co., St. Louis, is now an exclusive sales representative of Steel City Testing Machines, Inc., Detroit. Dabar will cover Kansas, Missouri and southern Illinois.

W. F. Slater has been made general sales manager of Kobe, Inc., Huntington Park, Calif. In addition, Ray Elnerhas been named hydraulic sales manager, and J. T. Lewis has been assigned as southern division sales manager at Fort Worth, Texas.

Sam Gurley, Jr., has joined the sales staff of Reichhold Chemicals, Inc., White Plains, N. Y. He was formerly general sales manager of plastics and resins for the Barrett Division, Allied Chemical & Dye Corp.

Columbia Steel & Shafting Co., Pittsburgh, has appointed Lee D. Phillips: as a sales representative in the Philadelphia-New York area.

Thomas W. Regan has been appointed sales manager of General Box Co., Des-Plaines, Ill. Mr. Regan, a company vice president since 1949, has been manager of the company's Winchendon, Mass., operations. He will headquarter in Des Plaines.



New Taylor laminates

are premium in everything but price

You'll like everything about this new family of Taylor paper-base laminates—including their price. They're a new kind of hot-punch laminate, uniform all the way through, with no surface overlay of resin.

In insulation resistance, water absorption, power factor, flame retardance and dimensional stability, they'll meet or exceed your strictest specifications. And they punch and stake so well . . . with smooth surfaces and clean edges . . . that you can produce complex parts with maximum utilization of each sheet.

Four different grades are available in production quantities, in standard sheet size of approximately 49" by 49":

XXXP-301...the top grade laminate with unusually high insulation resistance, lowest water absorption...excellent punching and staking.

XXP-351 . . . a high grade laminate with most of the properties of XXXP-301, at lower price.

Grade 353 . . . a quality grade laminate priced for economy, with outstanding electrical and physical properties.

Grade 354... an easily fabricated grade having low water absorption and good stability . . . priced for real savings.

Taylor Fibre Co. Plants in Norristown, Pa.; and La Verne, Calif. Branch offices in Atlanta; Boston; Chicago; Cleveland; Dayton; Detroit; Indianapolis; Los Angeles; Milwaukee; New York City; Philadelphia; Rochester; San Francisco; St. Louis; and Tolland, Connecticut. Distributors in Grand Prairie and Houston, Texas; Jacksonville, Florida; New Orleans, Louisiana; and Toronto, Ontario.

WRITE TODAY FOR FULL SPECIFICATIONS, AND FOR ENGINEERING ASSISTANCE IN APPLICATION

TAYLOR
Laminated Plastics
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For More Information Circle No. 404 on Inquiry Card-Page 17

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CUSTOMER SCHOOL AT MARINETTE—best equipped fire control school available for training your key safety personnel.



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VISUAL AIDS for your safety meetings designed to make all your employees fire-control conscious.

COMPLETE PLANT SURVEY provided by Ansul is designed to give you the best fire protection possible at the lowest cost.



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Get in touch with your local Ansul man through the "yellow pages" or write ANSUL CHEMICAL COMPANY, Fire Equipment Division, Department F-84, Marinette, Wisconsin.







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by speeding up the job. These brushes for sweeping, dusting, washing or scrubbing are strongly constructed of the best materials. Workers like them because they're well balanced and easy to handle.



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ISTRIBUTORS: Steel Sales Corp., Chicago, St. Leuls, Milwaukee, Indianapolis and Minneapolis iller Steel Co., Inc., Hillside, N. J.—C. L. Hyland Co., Dayton, Ohio—Service Steel Ce., Los Angel oliff.—Strong, Carlisle & Hammond Co., Cleveland, Ohio—Globe Supply Co., Denver, Colerado A. McMichaels Co., Upper Darby, Pa.—A. J. Fitzgibbons Co., Buffale, N. Y.—Herry E. Clerk

Shipments of Finished Steel Show Slight Upturn

Shipments of finished steel products by the steel companies increased 191,000 net tons in August over July to a total of 4,681,000 tons, according to the latest report of American Iron and Steel Institute. Thirteen of 20 industrial classifications took more steel in August than in the previous month.

The automotive industry took 656,000 tons in August, against 707,-000 tons in July. This industry's total in eight months of 1954 was 7.4 million tons, against 10.7 million tons in the same period last year. Warehouses, other than those serving the oil industry, received 812,-000 tons in August, or slightly less than in July. They received 6.6 million tons in eight months this year. The warehouses serve mainly

Construction (other than oil and gas industry construction) took 530,000 tons of steel in August and over 4.5 million tons in eight months this year. The latter total was 43,000 tons larger than in the first eight months last year.

small business.

Among the other industries receiving more steel in August than in July were oil and gas, contractors' products, industrial equipment, aircraft, appliances, ordnance, electrical equipment, containers, exports and bolts, nuts and rivets.

Containers of all kinds took 403,-000 tons of steel in August, and over 4.2 million tons in eight months.

Shipments to makers of plumbing, heating and hardware (contractors' products) totaled 265,000 tons in August, the largest monthly total to this classification this year. In eight months of 1954, this category received nearly 2 million tons. Export shipments of 203,000 tons in August exceeded the shipments for export in August last year. Among the various steel products, an increase of 17.1 per cent in stainless steel shipments in August over July was greater percentage wise than in other grades.

The shipments of steel in eight months totaled 42.4 million tons, against 55.4 million tons in the similar 1953 period. In addition to direct shipments from mills, industries obtain steel from warehouses.

QUICK—CONVENIENT Use the Inquiry Card on Page 17 for additional information on any product

For More Information Circle No. 407 ←on Inquiry Card—Page 17_

PURCHASING

tonary product that...

NEW

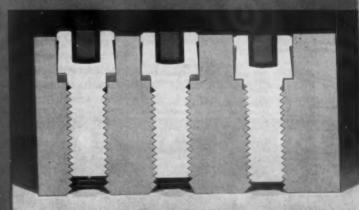
LED-LOK

WASHER

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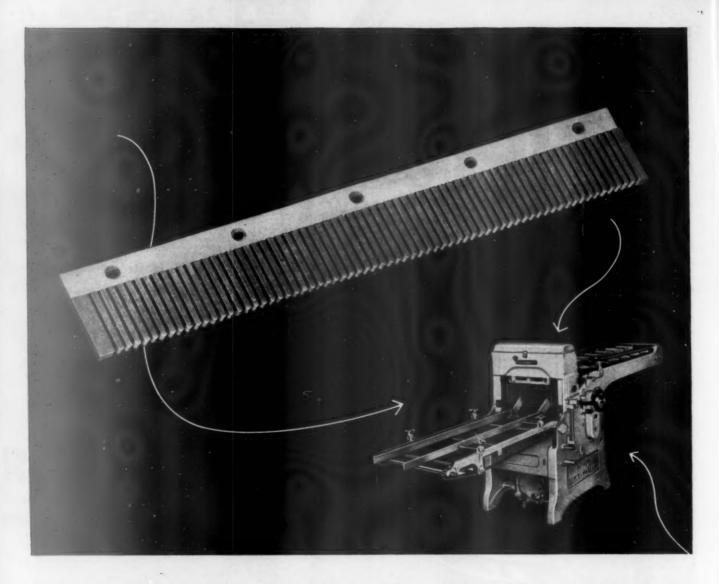
POSITIVELY WILL NOT LOOSEN UNDER ANY TYPE OPERATING CONDITIONS

Something really new has been added to socket screws . . . making them positively vibration-proof for the first time! BLUE DEVIL LED-LOK CAP SCREWS are also air-, water-, gas- and oil-tight, assuring positive sealing against moisture and corrosion. No assembly changes or design modifications are required. Remember . . . if it "moves," use LED-LOK Screws. Won't you get the facts today?



6502 AVONDALE AVENUE . CHICAGO 31, ILLINOIS Sold Only Through Authorized Industrial Distributors

For More Information Circle No. 408 on Inquiry Card-Page 17



How Synthane Guides help Slice your Bread

Properties of Synthane

ome additional properties of Synthane which and of interest:











• Pre-slicing bread presents an interesting opportunity for the use of Synthane laminated plastics. Comb-like guides of bread slicing machines hold the loaves in position and control the blades during the cutting action. These guides are made from Synthane because Synthane has certain properties in combination which well fit it for this job.

Synthane guides are hard, smooth, and easy to clean. They reduce friction and are dimensionally stable and light in weight. They are non-toxic, suitable for use in handling food products. And they can be easily and quickly machined to the shape required.

Our 25th Year

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When Synthane was first produced twenty-five years ago, it was regarded primarily as an electrical insulating material. Today its chemical, physical, and mechanical properties, in addition to its high dielectric strength, are being put to work in many different fields.

If you have need of a material with multiple properties in combination, Synthane may be your answer. Our catalog gives full data on many different grades of Synthane sheets, rods, tubes and molded parts. We will be glad to send you a copy on request. Address Synthane Corporation, 7 River Road, Oaks, Pa.



just the facts, ma'am

My name's Wickwire. I'm a spring. The boys call me Torsion Spring.

No end to the jobs I get. Opening ladies' compacts. Trapping mice. Shooting cap pistols for kids.

Same way with my partners, Compression Spring and Extension Spring. Always something doing.

If you want the facts, just write to Sales and Engineering, 2 New Bond Street, Worcester, Mass. Or contact any of the sales offices listed below.



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2508

Save on TEFLON*



... by buying the right grade of FLUOROFLEX*T for the application

E to the application.

"Electrical Grade" Fluoroflex-T certifies optimum performance of major properties. Non porous and with maximum density, it assures highest dielectric which means less cost in the end.

"Mechanical Grade" Fluoroflex-T, while it costs less, is quality controlled to deliver the unsurpassed chemical inertness of Teflon from -100°F to +500°F, and maximum resistance to "cold flow." Presently available in extruded rods and tubes, and parts therefrom.

Ask us for recommendations on your needs, and for price lists and quotations.

*DuPont trade mark for its tetrafluoroethylene resin.

*Resistoflex trade mark for products from fluorocarbon resins.

RESISTOFLEX

CORPORATION

Belleville 9, N. J.
For More Information Circle No. 411
on Inquiry Card—Page 17

Functional Paint Styling

Colors have psychological impact in addition to their decorative appeal

By Phil Lance

ORKING in close collaboration with color experts, plant purchasing agents have come to recognize that paint is no longer merely a coating to be applied by a painter who uses his stock-intrade colors. Paint as a coloring can fill too important a role to be so lightly treated. Changing the color of a room can raise or lower the blood pressure.

Through extensive research and trial-and-error tests, a scientific knowledge is being acquired, and colors are combined, in line with definite objectives to serve as an influence in all phases of our economy. Thus, paint as a coloring is becoming a vital factor in our lives.

Management Knows Importance

In industry, management has been quick to realize the importance of color (because it can create the illusion of warmth or coolness) on the rate of production. Blues and greens suggest coolness regardless of the thermometer reading. Buff and peach suggest warmth. Efficiency in summer in a particular office in a southern city was stepped up and absenteeism reduced when the interior was repainted from a warm buff to a cool blue. In a northern city an office decorated in blue was operated at top efficiency all during the summer. In winter, though the temperature in the room was kept constant at 75 degrees F., the occupants complained of the cold and slowed up in their work. When the room was redecorated in peach, they again worked at top efficiency-and without their coats. In both offices, management, through color, scored a psychological trick.

Management recognizes, also, the advantage in keeping rooms bright and attractive. The days of drab factories rapidly are passing. Clean working conditions are essential and realization of this was accelerated in no small part by the influence of the vast number of women war workers. Normally fastidious with respect to their own homes, women like clean, bright surroundings in industry. Light colored, washable surfaces make for cleanliness, and greatly lessen the problem of maintenance.

Color plays still other important roles in industry. Photometric measurements of light reflected by different colors can be taken in a factory and a color scheme developed to achieve the least possible eye-strain. Eye fatigue is thereby reduced, with resultant benefit to health, safety, morale, and efficiency.

In an intelligent approach to the problem of painting a factory, the first consideration should be the type and function of the structure, as each kind of factory requires a different treatment. Also to be considered is the amount of natural light admitted and the types and location of machinery and equipment.

Color may be used to focus attention on hazardous parts of machinery. For example, the body of the machine may be painted a medium gray and the critical or working areas finished in a washable, semi-gloss buff. The poll taken among operators in a factory adopting this color scheme revealed that all were convinced the new colors made the job safer and nearly 60% said they felt less eyestrain. Furthermore, management stated that cleanliness, efficiency, and production were definitely stepped up.

In some factories the moving parts of machinery are painted in colors that reflect light in cases where the materials being worked on are dark. For example, buff may be used for cool-hued materials like nickel or aluminum and light green for copper, bronze, or wood. Painting the floor white is often done to reflect light to working parts of machinery in areas that do not receive sufficient light from above. And more and more factories are using distinctive colors to mark traffic lanes and to point out dangerous areas, locations of First Aid kits and fire apparatus.

An oversimplified listing of the nature of colors would classify them broadly as follows:

Red—warm and stimulating, and creative of emotional reaction.

Blue—cool and conservative in its effect.

(Please turn to page 298)

THE NUMBER 15245 on the bearing cup at right, together with 15123 on the cone, tells you that this is a certain size tapered roller bearing. But when the number is accompanied by the trade-mark "Timken", it also predicts future years of trouble-free operation. To a top P. A., it holds a promise of extra quality and service that go with every Timken® bearing.

INTERO-15245-MADEIN

THE NUMBER THAT PREDICTS THE FUTURE



IN JUST 40 SECONDS this spectrometer tells the exact chemical composition of a melt of Timken bearing steel. Results are flashed back to the furnace to give our melter constant control of the chemical analysis. The Timken Company is the only U. S. bearing manufacturer that makes its own steel in order to control quality every step of the way.



CATCHING REJECTS before they happen is the job of our statistical quality control. For instance, a chart like this on every grinder records the dimensions of several cups or cones from each lot. Trends toward off-size bearing parts show up instantly. This is another step we take to help make Timken bearings the best bearing value for *your* product.



OUR ENGINEERS WILL HELP YOURS design bearing applications for your product—at no cost to you. They can often suggest improvements and more economical installation methods. This service is one more reason for always specifying "Timken" with a bearing number. Quality, service and public acceptance make Timken bearings your number 1 value. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

QUALITY, SERVICE AND PUBLIC ACCEPTANCE MAKE TIMKEN NUMBER 1 FOR VALUE

NOT JUST A BALL O NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER DEARING TAKES RADIAL AND THRUST- -- LOADS OR ANY COMBINATION



For <u>low-cost</u>, <u>dependable</u> steam, Upjohn burns <u>coal</u> the modern way

Upjohn has long been famous as a manufacturer of pharmaceutical products. Because of the nature of these products, it was necessary that the steam plant of Upjohn's new Portage Road Plant, near Kalamazoo, Michigan, operate cleanly as well as economically. Therefore, coal was chosen to fire its boilers.

Today Upjohn's ultramodern steam plant supplies steam at only 40c to 42c per 1,000 pounds. It is clean and efficient, with no dust or smoke nuisances, and ash handling is fully automatic. At peak load, the three boilers shown above, plus a fourth recently installed, deliver up to 115,000 lbs. of steam per hour.

Investigate Your Fuel Costs

If you're planning to modernize your plant or build a new one – or if you are just interested in cutting fuel costs – find out how coal, burned the modern way, compares to other fuels. Talk to a consulting engineer or your nearest coal distributor. Their advice may save you thousands of dollars every year.

facts you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available.

Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar.

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Coal is the safest fuel to store and use. No dust or smoke problems when coal is burned with modern equipment.

Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

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how to keep production UP

and costs DOWN
...electrically!

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LOCKS SECURELY



Available in 2, 3 and 4-wire types, in 10 and 20 amperes. Listed as standard by Underwriters' Laboratories. Meet Federal Specification WR-151A.

Your responsibility is great . . . for whether your firm's production and costs go up or down may depend, in part at least, upon the wisdom with which you purchase. When you specify ARROW-HART HART-LOCK INTERLOCKING WIRING DEVICES, you can be certain that you have made the choice that will prove most beneficial to your company.

Because Hart-Lock devices cannot disconnect accidentally, there can be no interruption of power — in machine shops, laboratories and research departments, offices and accounting departments, etc. — that will result in production delay, product damage and increased operating costs.

When you specify Arrow-Hart, you buy quality . . . economically. You simplify your ordering because Arrow-Hart offers a complete line of wiring devices and you can fulfill all your needs with one order. And you can count on prompt delivery from a nearby source . . . because Arrow-Hart Wiring Devices are carried by a larger number of

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Please send me the free Hart-Lock Folders and all available information about "No-Trak" Receptacles and Connectors.

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CO. ADDRESS.

CITY___

E____STATE___

 \leftarrow For More Information Circle No. 413 on Inquiry Card—Page 17 NOVEMBER, 1954

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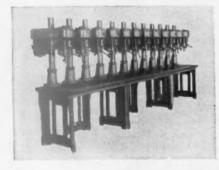


Add as many spindles as you want — and multiply your savings — with this combination designed for economical production drilling. You will note, as indicated by the drawing and photos, that you may combine any number of Table Sections to accommodate just the right

number of 20" LIGHT-HEAVYWEIGHT Drill Press Spindles to fit the specific jobs you have to do.

This LIGHT-HEAVYWEIGHT combination gives you the maximum in flexibility and economy. The number of intermediate Table Sections determines the number of Spindles which can be varied to fit the nature of your work and output requirements. Best of all, you avoid the heavy expenditure for costly, specialized equipment.

Ask your Distributor to demonstrate the performance advantages of Walker-Turner LIGHT-HEAVY-WEIGHT 20" Drill Press units. He has them in stock as Bench Models and Floor Models, and can specify Multi-spindle Models with exactly the number of drill heads you need.



Walker - Turner LIGHT-HEAVYWEIGHT

20" Multi-spindle Drill Press
(Six Table Sections - 12 Drilling Units)

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DRILL PRESSES — Hand and Power Feed • RADIAL DRILLS • Wood and Metal Cutting BAND SAWS • TILTING ARBOR SAWS • RADIAL SAWS • JIG SAWS • LATHES • SPINDLE SHAPERS • JOINTERS • BELT AND DISC SURFACERS • FLEXIBLE SHAFT MACHINES

(Continued from page 294)

Yellow—stimulating and energizing; associated with sunlight.

Green—associated with nature; has a cooling effect, abates excitement, and induces happiness. It also counteracts excessive brightness of sunlight. With most people, it ranks with blue and red in popularity.

Brown—restful and warming, but depressing when used alone. It is preferable in combination with orange, yellow or gold.

Orange—luminous and autumnal. Connotes joviality but is probably the least popular of the basic colors.

Purple—denotes dignity, but is conducive of mournfulness or lone-liness.

Black—depressing when used alone, but it is important for its contrast value.

White—cool and denotes cleanliness. When combined with red, yellow, or orange, the effect is stimulating. White is inclined to be cool-seeming when used alone.

Acoustics, also, are improved with the proper use of color. Light-colored surfaces reflect sound waves, whereas dark surfaces absorb, and thus mute them.

With the better acquainting of the functional uses of color, as well as knowing that paint is an efficient and economical preservative, plant men should take a greater interest in paint styling.

Plant Maintenance Show to Be Held January 24-27

The next Plant Maintenance & Engineering Show will be held at the International Amphitheatre, Jan. 24 to 27, 1955, according to Clapp & Poliak, Inc., New York, founders and producers of the event.

The show, staged for the sixth time, will be the largest in its history. It is now one of the largest industrial expositions in the country.

The show will be the first industrial exposition to occupy the huge new \$2,000,000 hall which has been built as an addition to the International Amphitheatre. The new hall has 188,000 square feet of space, with large exhibit bays of 2,400 square feet unobstructed by columns. Headroom is at least 20 feet in all parts of the hall and 26 feet in some areas.

USE INQUIRY CARD PAGE 17



WITH T and W DEEP DRAWN STAMPINGS

Many leading manufacturers have redesigned parts for use of T&W Deep Drawn Stampings . . . and have made

notable savings. Also gained were . . . light weight, strength, and improved appearance. T&W engineering is available to you.

TRANSUE & WILLIAMS . Alliance, Ohio

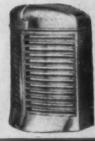
For those manufacturers having their own press equipment, Transue will gladly quote on die requirements.



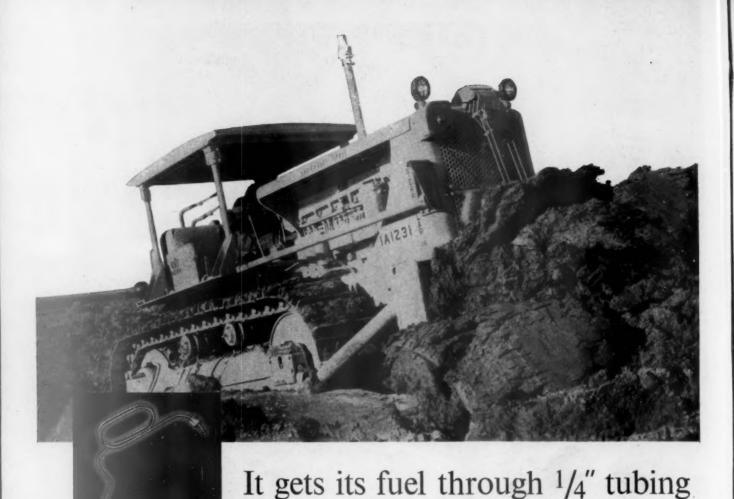








SALES OFFICES: NEW YORK, PHILADELPHIA, CHICAGO, DETROIT, INDIANAPOLIS, CLEVELAND



at pressures up to 1,700 psi

Meet the "Boss of the Crawlers"—Caterpillar Tractor Co.'s new 150 D.B. hp giant that toys inspection at 15 power magnification assu

boulders, topples trees like tenpins.

Superior Tube supplies metal gullets through which such landscape levelers gulp their fuel.

with tons of earth, plays marbles with huge

Through ¼ inch O.D. tubing, diesel fuel is injected to cylinders at pressures up to 1,700 psi. So fuel injection tubing must be clean, have tremendous burst strength and resistance to fatigue. To meet Caterpillar's stringent specifications, Superior selects C-1008 Low Carbon Steel Tubing, draws it to size 250/255" O.D. x 0575/0675" I.D., then tests its mechanical properties to the utmost.

Result: heavy wall tubing with Rockwell hardness of B-65 maximum—capable of being cold upset without difficulty and cold forme l into loops and bends without excessive springback. Bore is of uniform diameter, smooth

and specially cleaned, and fracture testing and inspection at 15 power magnification assure freedom from cracks or seams of a depth greater than 5/1000 of an inch!

Scrupulous care in preparing, drawing and testing other grades of alloy and stainless Superior tubing makes them first choice for lubricating and cooling lines, governor shafts, valve spacers and valve push rods. One of our more than 55 analyses should be *your* choice, too, if you need trustworthy tubing and special help in adapting it to your use. Write us about your current tubing problem. We'll send you complete information and the appropriate catalog or technical bulletin by return mail. Superior Tube Company, 2034 Germantown Ave., Norristown, Pa.

Round and Shaped Tubing Available in Carbon, Alloy and Stainless Steels; Nickel and Nickel Alloys; Beryllium Copper; Titanium; Zirconium.

All analyses .010" to %" O.D. Certain analyses in light walls up to 2½" O.D.



West Coast: Pacific Tube Company, 5710 Smithway St., Los Angeles 22, Calif. RAymond 3-1331

For More Information Circle No. 417 on Inquiry Card-Page 17



save money through cold heading design by HARPER

All the parts shown above were cold headed by Harper. The savings indicated were made over and above the cost of producing them by milled-from-bar or other processes.

Here are a few of the services Harper offers you:

1. A complete field engineering service to help you in the design of your product. Sales engineers in principal cities.

- 2. The widest experience in the field in working exclusively with non-ferrous, stainless steel and high temperature alloys.
- Over 7,000 items carried in stock with Branch Offices and distributor warehouses in every major market area.

Let Harper help you solve your fastening problems. Mail the coupon.



SPECIALISTS IN ALL
CORROSION-RESISTANT
FASTENINGS
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NICKEL • COPPER
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EVERLASTING FASTENINGS

The U. M. Harres	C
The H. M. Harper (8222 Lehigh Ave.,)	Morton Grove, Ill.
Please quote gestions for r	me on the attached part or make sug- edesign. (Blueprint attached.) atalog and have a salesman call.
Name	
Company	
Position	•••••
Address	• • • • • • • • • • • • • • • • • • • •
City	



Them all

YOU draw the Shape... PAGE will draw the Wire

Cross-sectional areas up to .250" square; widths up to \%"; width-to-thickness ratio not to exceed 6 to 1.

Tell us the way you want it. We'll follow your specifications.

Write or wire today

Page Steel and Wire Division AMERICAN CHAIN & CABLE

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Bridgeport, Conn. plus
Welding
Electrodes
Wires
Rods

Oakite Opens New and Expanded Research Lab

In preparation for accelerated development work on new chemical cleaning compounds, Oakite Products, Inc., recently tripled the size of its research facilities. The new quarters, which houses the company's research, product development and customer service departments, totals approximately 30,000 square feet. In addition, a complete pilot plant is planned for the small scale manufacture of detergents and solvents prior to extensive field testing.



Oakite President John A. Carter, surrounded by members of the company's research staff, pulls the switch to open the new laboratory in New York City.

Spearheading all new product developments is the chemical research laboratory. It is manned by a staff working in 11 separate special laboratories which works on organic, inorganic and bacteriological problems. Among the many precision instruments used is a tergitometer which measures cloth washing effectiveness.

In the conversion coating laboratory the effectiveness of zinc and phosphate coatings is checked. Impact and scratch tests are made and test samples are placed in salt spray chambers to see how well the coating resists corrosion. Chemists have a 2500 volume research library at their disposal to assist them in diagnosing any problems.

One of the most interesting areas in the new facility is the customer service laboratory. Here customers, without research laboratories of their own, send 1500 problems annually in for analysis by Oakite's experts. In this laboratory there is a wide assortment of equipment used to simulate a customer's actual needs. Included are washing machines, an electroplating line, barrel finishing equipment, and a salt spray chamber.

A company spokesman stated that, although the new laboratories are entirely adequate for present needs, further expansion is possible in the future because the rapid growth of industrial cleaning products makes for more complex research and development problems.

CCO

Consistent Performance

is "engineered" into
Waterbury Phosphor Bronze & Nickel Silver



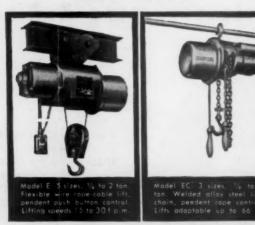
Make

heavy handling jobs Electric

Now, an outstanding new line of Chester Electric Hoists is available to help you put more heavy handling jobs on a paying basis in your plant.

Ask your distributor for complete information on the new Chester Electric Hoists, or write us for specification folders, E 853 and EC 953.

Remember Chester too, for the complete line of Spur Geared Hand Chain Hoists and Overhead I-Beam Trolleys. 1/4 to 25 ton. Ask for catalog.



CHESTER HOIST DIVISION

The National Screw & Mfg. Company Lisbon, Ohio



For More Information Circle No. 421 on Inquiry Card-Page 17



100% ACTIVE -- 100% SAFE!

NEW LIQUID SYNTHETIC DETERGENT

CINDET can be used in hard or soft water for hundreds of cleaning needs. It LOOSENS dirt quickly, LIFTING IT AWAY AND HOLDING IT IN SUSPENSION in a mass of creamy suds. Removes stubborn stains, rubber marks.

CINDET works fast, dries quickly, can be used safely on anything water itself won't harm-including the user's skin. Use CINDET to strip old water emulsion waxes from floors quickly and surely, AND FOR ALL GENERAL CLEANING

CINDET is approved by the Rubber Manufacturers' Division of the Rubber Manufacturers' Association.

Write for Dolge literature on CINDET, and have your DOLGE SERVICE MAN demonstrate its easy, economical use.



For More Information Circle No. 422 on Inquiry Card-Page 17

Bituminous Coal Producers Say Cutback in Residual Oil Imports Would Aid Defense

"The ability of the bituminous coal industry to meet the demands made upon it for purposes of national defense" is the primary consideration of the coal industry in its efforts to obtain a reduction in the volume of imported residual oil, according to a statement presented to the Interdepartmental Committee on the Bituminous Coal Industry. The statement by the Bituminous Coal Industry Committee covers the residual import problem and suggested solutions for it.

The Committee's presentation divides the suggested relief into permanent and interim or supple-

mental proposals.

"The only measure of real and permanent relief' according to the Committee's statement "lies in federal legislation which would place a quota limitation on residual oil importations, based upon 5 percent of the domestic consumption."

The "interim and supplemental" relief proposals cover five steps.

They are:

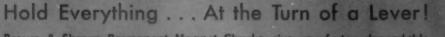
1. Executive action, by directive or other means, to "effect an immediate cutback in the quantity of residual oil imports." The Committee points out that its suggestion is made "because previous efforts to have the oil companies themselves limit imports have been unsuccessful."

2. Referring to a Defense Department statement on fuel consumption, the report points out that government facilities are using residual fuel oil equivalent to 7.6 million tons of bituminous coal a year. It is recommended that "the government could, by immediate action, provide for the logical conversion of federal agency facilities from oil burning to coal burning." In addition, it is recommended that the government by directive "require the use of coal as a fuel, where feasible, in all cases of the manufacture or delivery of goods and services for use by the United States government."

3. Based on the theory that our nation's security, in either defense or war-time, would have greater need for "higher grade petroleum products" than for residual oil, the statement suggests that whenever "any quantity of residual fuel oil is to be imported into the United States, then this country should have the advantage of the importation of the much more needed and

(Please turn to page 308)

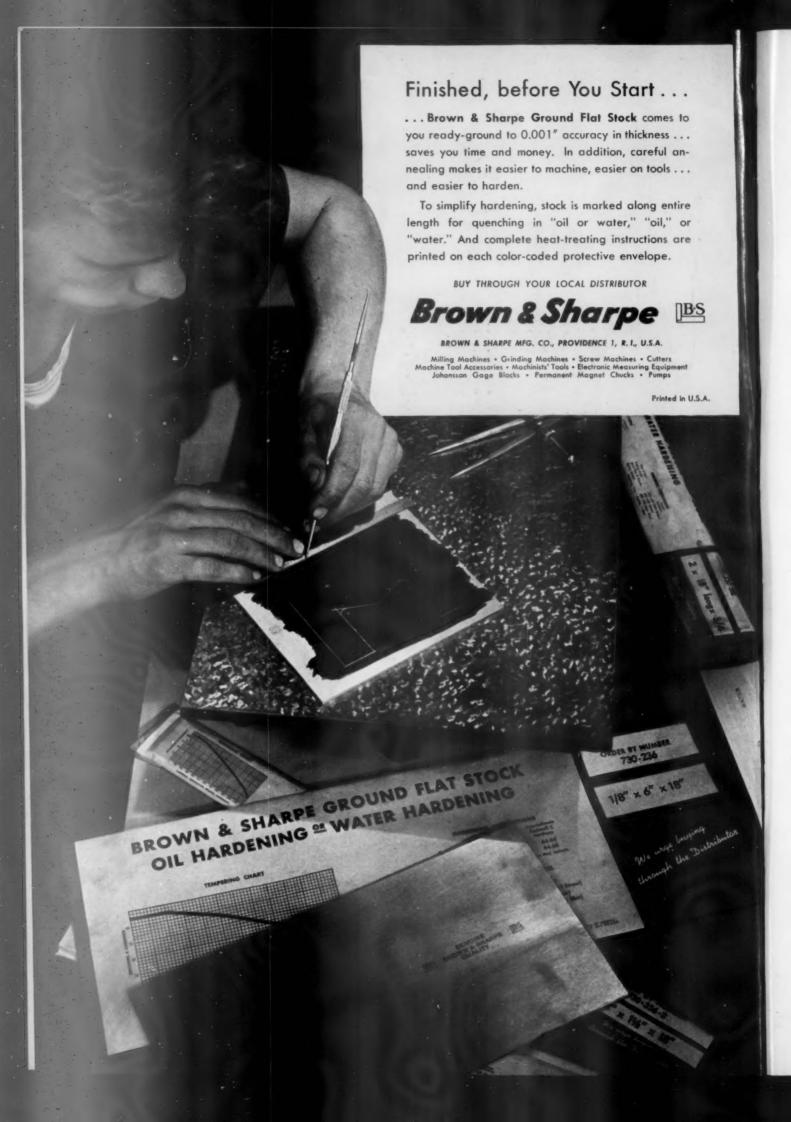
For More Information Circle No. 423 on Inquiry Card—Page 17→

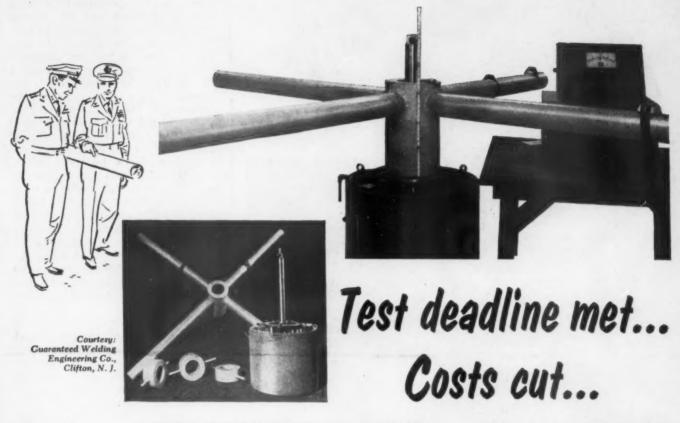


Brown & Sharpe Permanent Magnet Chucks give you faster, dependable chucking for a wide variety of jobs. Their powerful magnetic grip engages or disengages at the turn of a lever. Strong permanent magnets make holding ability completely reliable ... immune to plant power failures. And, freedom from electric wires permits using these chucks anywhere in the shop. Rectangular Models in 8 sizes from 2½"x5" to 12"x36"; Rotary Models in 5", 7" and 9" diameters. Write for catalog containing specifications on the complete line.

Brown & Sharpe







with a FRASSE tubing "special"

With new turbo propellors already in production, a 3000 pound "dummy" prop was needed quickly to test a new electronic balancing device for the armed forces. In spite of a near impossible one week test deadline, the maker delivered the simulated prop 3 days early—yet cut costs 30%.

The hub, too large and heavy for standard tubing, was first planned as a forging machined to size. But delivery quoted was six weeks—and machining costs were high.

Frasse supplied a centrifugally spun steel tube 12½" O.D. x 2¾" Wall—a Frasse tubing "special"—right from warehouse stock. The large diameter heavy wall tube eliminated costly machining—sped the job to completion in 4 days!

FRASSE for Steel Tubing

Tubing "specials" like the one used here are a stock feature at Frasse. Complete and diversified stocks, prompt deliveries and assistance in tubing selection and fabrication "know-how" add up to Frasse—the tubing warehouse. For carbon, alloy and stainless steel tubing make your buy-word Frasse.

*Cost figures available on request *

Want details on ALL Frasse tubing?

Send for this new folder describing all Frasse tubular products. Details include analyses, size ranges, mechanical and physical properties—also fabricating hints and ideas for end uses. Frasse tubing "specials" are included too! Mail the coupon for your copy—it's free!



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Please send a free copy of your folder on steel tubular products.

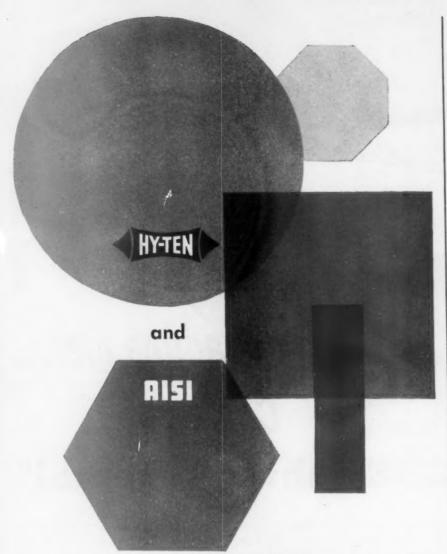
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City. Zone & State

For More Information Circle No. 424 on Inquiry Card-Page 17

25 A



bars, billets and forgings in sizes, shapes and treatments for every need!

Wheelock, Lovejoy & Company, Inc., can fill your alloy steel requirements promptly. This applies to both standard AISI and SAE steels and to our own HY-TEN steels "the standard steels of tomorrow". Take advantage of our seven strategically located warehouses. All of them can supply these steels in the form and quantity you need. Every warehouse, too, is staffed with expert metallurgists who are ready to serve you.

Write today for your FREE copies of Wheelock, Lovejoy Data Sheets. They contain complete technical information on grades, applications, physical properties, tests, heat treating, etc.

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WHEELOCK, LOVEJOY & COMPANY, INC.

140 Sidney Street, Cambridge 39, Mass.

For More Information Circle No. 425 on Inquiry Card-Page 17

(Continued from page 304)

more essential petroleum products such as gasoline and the lighter oils." Therefore, it is suggested that "a proportionate amount of the higher grade petroleum products based on a percentage relationship of the total consumption of the higher grade products to the percentage of residual fuel oil included in the total petroleum consumption, excepting fuel oil required for bunker fuel," be a requirement of any import program.

4. In order that "the domestic petroleum industry's ability to meet defense requirements not be interfered with," the report suggests that total amount of petroleum products which would be permited to be brought into the United States be limited to the crude equivalent necessary to "supplement but in no case supplant the domestic production."

5. The report recommends that the government of Venezuela and other foreign petroleum producing interests, "as well as the major oil companies operating and controlling such exporting petroleum ventures. should be encouraged to convert to or construct the more modern catalytic type of refineries "to replace the present wasteful and inefficient thermal plants." By so doing, the report says there would be available "a greater quantity of the more essential and the more profitable petroleum products" and thereby the percentage of "down graded petroleum products such as residual fuel oil" would be reduced.

Issue Drafting Standards for Aluminum Extrusions

The second edition of "Drafting Standards — Aluminum Extruded and Tubular Products" has been issued by the Extruded Products Division of The Aluminum Association.

Many changes have been made to keep the manual abreast of advances in production and application methods that have developed since the first edition was issued in 1949.

Explanatory material and diagrams have been added in several sections, particularly those on tolerances and dimensioning. Changes in tolerances have been made in a number of cases where experience has indicated such changes to be desirable. Copies may be obtained by writing on company letterhead to The Aluminum Association, 420 Lexington Avenue, New York 17.

For More Information Circle No. 426 on Inquiry Card—Page 17→ PURCHASING





The pipe was farther along than the auto!

They made their automobiles high in the days when this photo was taken at the Taylor Forge Works, and that's why Taylor Forge chose this way of demonstrating the largest heavy-walled pipe the

world of 1916 had ever known.

As a matter of fact, the pipe was farther along than the automobile; for Taylor Forge had started the manufacture of this large pipe as early as 1907. Before then, pipe had been just a tube for conveying fluids, but by 1907 there was a widespread call for large, rated pipe to withstand widely varied and exacting services.

Taylor Forge responded to this call. In pioneering forged steel flanges, Taylor Forge had learned a lot about forging technique and piping practice...and both schoolings were prerequisite to the new venture. The projected large diameter pipe was to consist of heavy plate rolled into shape, then hammer lap welded to a smooth, sound weld. This called for heavy, specially designed equipment to make the process work and to provide the first smooth interior pipe and pressure vessel cylinders produced in this country

Typical of the pioneering obstacles was the need for a clean flame to prevent scale forming at the weld, but this problem was solved when Mr. J. Hall Taylor designed and installed a large water gas plant that provided the desired welding conditions.

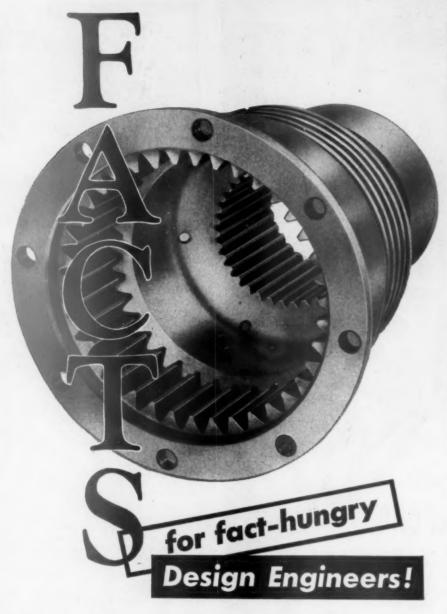
Thus it was that by 1916 Taylor Forge was making pipe up to 96"; forging all types of end joints on it; engineering it and prefabricating it into hydro-electric penstocks; laterals and Y's for pumping stations, pipe lines, and for similar applications all over the world.

Since the introduction of automatic metallic arc-welding this large pipe has been produced as "Taylor Straight Seam Electric-Weld Pipe," but there are hundreds of miles of the old "Taylor Hammer Lap Welded Pipe" still giving as good service as it did the day it was installed.

An episode in the story of Taylor Forge leadership in designed piping



This old painting—the original in full color depicted the original process of making Taylor hammer lap welded pipe.



WE do not make and sell gears. We endeavor to "sell" you on our gear engineering know-how and — with your specifications as a base — produce gears which will provide maximum service in accordance with their pre-determined function, operating and environmental conditions and the characteristics of the system of which the gear is a part. Obviously, Perkins' facilities to do all this pre-supposes that our mechanical equipment for production matches our abilities in gear engineering. It does!

PERKINS MAKES in all materials, metallic or nonmetallic, and in any size, to your specifications: helical gears, bevel gears, sprockets, ratchets, worm gears, spur gears with shaved or ground teeth, ground thread worms.

*Illustrated above: Typical Perkins custom-made gear

NOTE: The PERKINS PRECISION SPRING COILER is the latest development in the spring coiler field and eliminates entirely the use of arbors and long set-up time. It is a complete self-sufficient machine and enables you to make the spring you want when you want it - in seconds. The coiler produces any type of spring, in any diameter and any pitch with this range: Wire Sizes .005 to .125. Diameter from 3/32" to 12" and larger. Size of the compact coiler is only 71/2 x 16". A POWER MODEL mounted on a welded steel console cabinet base is also available. Full information on request.

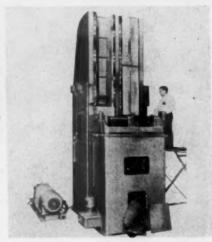
PERKINS MACHINE & GEAR COMPANY WEST SPRINGFIELD, MASSACHUSETTS

For More Information Circle No. 427 on Inquiry Card-Page 17

New Products

(Continued from page 168)

Machine Increases Broach Life



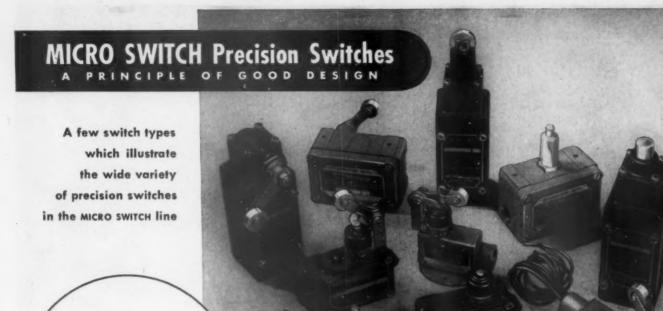
Asserting it to be the first of its kind, the Lapointe Machine Tool Co., Hudson, Mass., announces a vertical broaching machine with electro-mechanical drive. Although primarily designed for broaching of aircraft engine turbine buckets, this double ram machine is readily adaptable to the production of many other parts requiring surface broaching. An exclusive tipdown work table is a special feature of the machine. It is easy to load and unload and minimizes operator fatigue. The smooth broaching operations of the machine are said to increase tool life up to 500%.

Circle No. 99 on Inquiry Card-Page 17

Clamp Permits Safe Handling of Crated Materials

A clamp attachment handles a variety of crated materials. Springs. mounted along the entire inner length of each arm, contact crossmembers of the crate. At points where the springs come in contact with vertical members, the springs compress, preventing damage to crates or contents. This unique spring device assures safe, secureholding pressure. The crate clamp is controlled by a special clamp operating mechanism. This device permits other clamp attachments to be interchanged quickly with the crate clamp. The entire crate clamp operating mechanism can be detached quickly if the truck is to be used as a standard fork unit. Towmotor Corp., 1226 E. 152nd St., Cleveland 10, Ohio, is the manufacturer.

Circle No. 100 on Inquiry Card-Page 17



Why

it is GOOD BUSINESS to specify

MICRO SWITCH when ordering small, precision switches

Experience—MICRO SWITCH is a pioneer in the manufacture of precision, snap-action switches.

Quality—Exclusive MICRO SWITCH testing and quality control methods assure absolute uniformity of performance and reliability, whether the order is for a few switches or hundreds of thousands.

Service—Experienced MICRO SWITCH field engineers are as close as your telephone... at 16 branch offices. Their consultation, without cost, can help your engineering staff select the exact switch to meet your critical requirements.

Development—If consultation discloses that

an entirely new switch is required, MICRO SWITCH engineering service, both in the field and at the factory, will cooperate in the development of the switch for your application.

Replacement — It is easy to buy MICRO SWITCH products for replacement or for plant installation on present equipment to make it safer, more automatic or more productive. Stocks of switches for this purpose are in the hands of 176 distributors at 155 key points.

Savings—Economy from the use of MICRO SWITCH precision switches comes from their precise operation, their long-life dependability and freedom from maintenance.

If you require small, precise, light-weight switches, it is good business to specify MICRO SWITCH.

They give longer life than you will ever need.

MICRO SWITCH provides a complete line of extremely reliable, small-size, high-capacity, snap-action precision switches. Available in a wide variety of sizes, shapes, weights, actuators and electrical characteristics. For all types of electrical controls.

MICRO SWITCH

tors and electrical characteristics. For all types A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY of electrical controls.



DECORATIVE CHROME PLATERS! THESE PELLETS WILL SAVE YOU MONEY

Zero-Mist, the new completely stable additive for chromium plating baths which eliminates spray and mist, has been introduced by Udylite.

Hundreds of chrome platers are using Zero-Mist and praise its results.

When you use Zero-Mist, spray and mist are absolutely eliminated. Valuable chromic acid does not go out through your air ducts. Washing of exhausted air is not necessary. Chromic Acid waste is cut up to 70%.

Zero-Mist is indestructible at all temperatures and in all concentrations. It is not broken down by the most concentrated boiling chromic acid solutions. High anode or cathode current densities do not affect it. It minimizes staining and reduces drag out losses. Health conditions in plants are improved, It is easy to maintain in the bath. Its control is simple. It lasts and lasts.

If you haven't tried Zero-Mist you should do so soon. Order a trial package today from our local representative or write to:



DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

can help AM





With assured delivery service

It's not hard to get a promise of shipping container delivery. But often there are a number of "ifs" in that promise. "Ifs" that don't exist at Gair.

"If our supply of raw materials permits, we'll be able to deliver on schedule" is one of the "ifs" you won't find at Gair. Our raw materials are grown in our own forests, processed in our own plants. We don't run short.

"If our manufacturing schedule holds up" is another qualification you won't hear from Gair. We have eleven plants, equipped to fabricate whatever quantities and types of corrugated or solid fibre shipping containers you need:

"If local transportation facilities stay on schedule" is a third worry you don't have with Gair. Gair trucks provide a neighborhood service from strategically located plants.

Check your nearest Gair plant for the complete story on Gair-designed shipping containers to meet your specific needs.

GAIR CONTAINER PLANTS

Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Los Angeles, Cal. • Martinsville, Va. • No. Tonawanda, N.Y. • Philadelphia, Pa. • Portland, Conn. • Richmond, Va. • Syracuse, N.Y. • Teterboro, N.J.

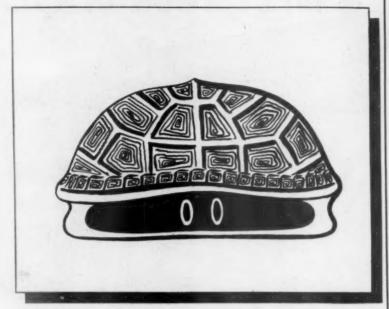


SHIPPING CONTAINERS FOLDING CARTONS PAPERBOARD

ROBERT GAIR COMPANY, INC. . 155 EAST 44TH STREET . NEW YORK 17

For More Information Circle No. 430 on Inquiry Card-Page 17

Equipped for Safety



▶ Nature equipped the turtle to protect itself against its enemies. Mayflower is equipped to move your furniture anywhere in the United States or Canada quickly and safely. Mayflower vans are all modern tractor-trailer units, espe-

cially designed to give your furniture added protection against damage. There are no tailgates; everything rides safely inside. The next time you move long distance, use Mayflower Moving Service.



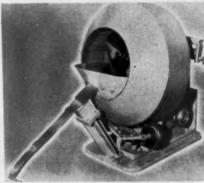
AERO MAYFLOWER TRANSIT COMPANY . INDIANAPOLIS

Mayflower's organization of selected warehouse agents provides on-the-spot representation at the most points in the United States and Canada. Your local Mayflower agent is listed in the classified section of your telephone directory.



For More Information Circle No. 431 on Inquiry Card-Page 17

Tumble Hopper Feeds Variety of Parts at High Rate



A ¼ hp powered tumble hopper has been designed by the Feedall Machine & Engineering Co., 38399 Pelton Rd., Willoughby, Ohio, for feeding a variety of parts at a high rate. It is readily adaptable to assembly presses, centerless grinders, secondary operation machines or other high production machinery. The range of work to be fed includes washers, nut blanks, nuts, special stampings and headed parts up to 1/2" diam. The tumble hopper is self-contained, mounted on a flat base, of fabricated steel construction and extremely rigid in design. Circle No. 101 on Inquiry Card-Page 17

Electronic Process Controller



A self-contained, direct deflection, indicating controller is adaptable to a variety of process applications such as heat-treating furnaces, ovens, kilns, or machinery for extruding and molding plastics and non-ferrous metals. It can also be used to indicate and control voltages, current, speed and similar variables in process industries. The device operates on the electronic control principle—a control circuit is constantly sensing changes in the measured variable. The controller is a product of Wheelco Instruments Div., Barber-Colman Co., Rockford, Ill.

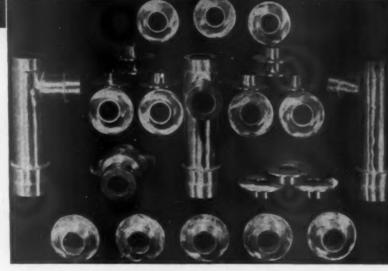
Circle No. 102 on Inquiry Card-Page 17

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This is the mark that means clean, sound Stainless Castings all the time



Write for your copy: "ALLEGHENY METAL CASTINGS"

32 pages of valuable and complete data on stainless castings: analyses, properties, technical data on handling and heat treatment, typical applications, how to order, etc.

ADDRESS DEPT. P-59

Every stainless casting produced by our Buffalo Foundry carries the familiar "AL Star" trademark, cast into the steel. That means it's Allegheny Metal, the time-tested stainless steel—a pioneer that has successfully answered thousands of difficult corrosion and heat resisting problems.

It not only means experience in stainless casting applications, but in maintained high quality, too. The A-L Buffalo Foundry is a pioneer in both the vertical-centrifugal and static

methods of casting stainless steel. You can depend upon Allegheny Metal Stainless Castings to be strong, clean-surfaced, sound-structured and easy-machining... fully in accord with the service conditions and with your requirements for delivery.

Let our stainless foundry specialists quote on your problem jobs—any shape casting or any size, up to thousands of pounds. • Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.

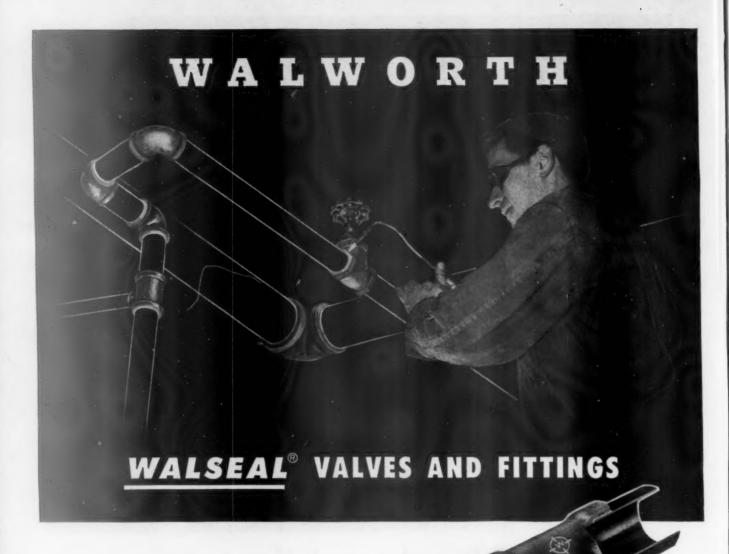
You can make it BETTER with

Allegheny Metal

Wap 5007 Warehouse stocks carried by all Ryerson Steel plants



For More Information Circle No. 432 on Inquiry Card-Page 17

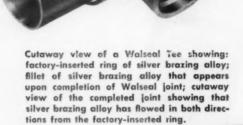


Better because ... There's no guesswork when a silver-brazed joint is made with a Walseal fitting. Sil-Fos alloy, which appears as a fillet at the face of a Walseal joint, comes from rings which have been factory-inserted in the end connections of Walseal fittings. The bright silver alloy fillet that you can see assures full penetration of alloy for a permanently leakproof joint.

Walseal is a registered trade mark which identifies valves and fittings manufactured by the Walworth Company. Walseal products have factory-inserted rings of silver brazing alloy in threadless ports. Walseal joints can be made only with Walseal valves and fittings.

If you're piping water, oil, steam, air, oxygen, nitrogen, helium or other industrial gases or refrigerants through brass, copper, or copper-nickel pipe, you'll want to investigate Walseal - available in complete lines of valves and fittings in four distinct pressure ranges from 0 to 5000 psi. working pressure*. Your copy of Circular 115 will be sent on request . . . see your near-by Walworth Distributor today, or write to: Walworth Company, General Offices, 60 East 42nd Street, New York 17, N. Y.

*Walseal fittings and valves are being used at sub-zero temperatures as low as -350 F.



Make it "a one-piece pipeline" with WALSEAL



WALWORT

Manufacturers since 1842

valves . . . pipe fittings . . . pipe wrenches 60 East 42nd Street, New York 17, N. Y.

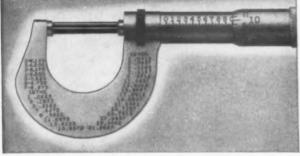
DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD



To function effectively, a spring pin must drive easily into holes drilled to normal production tolerances, compressing as driven. To drive easily, hold firmly and fit flush, the pin -every pin-must meet the strict requirements of specifications such as those prepared by the SAE and the Military Services.



Since failure of a pin can be as costly as a failure of any other precision part, it is important to check the pins you buy for uniformity . . . uniformity of diameter and length, shear strength, hardness, insertion and removal forces, and recovery of diameter.



Rollpin has been tested many times - by many manufacturers - with a consistently high performance record. It has been widely recognized

in the pin as in

as the "quality" fastener of its type. In this case, quality can be-and should be-measured. We strongly urge that you test for quality when buying spring pins.

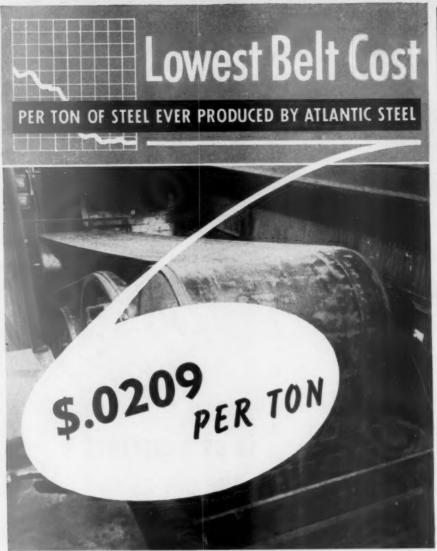
the gear



LASTIC STOP NUT CORPORATION OF AMERICA

os a rivel RO	TRADEMARK a hinge pin	
a dowel	u set screw	,

Please send the following	ng free fastening information:
Rollpin samples Rollpin bulletin	Here is a drawing of our product. What self-locking fastener would you suggest?
Name	Title
Firm	



Rhoads 81—10/12' + Lap x 48" heavy 3 ply Tannate Watershed Belt installed on 5 roll stand intermediate mill.

PROBLEM: To lower leather belt costs on a drive operating a 5 roll stand intermediate rod and Merchant Bar Mill and consequently to obtain lower manufacturing costs per ton of steel produced.

SOLUTION: After trying several makes of flat leather belting, Atlantic Steel Company, Atlanta, Georgia installed specially tanned 81-10/12' + Lap x 48" heavy 3 ply Tannate Watershed leather belting. This belt was specially tanned choice center stock leather developed by J. E. Rhoads and Sons, and as a result was able to withstand terrific heat and moisture plus exceptionally heavy starting and shock loads. Belt speed varies from 2600' per min. to 6650' per min. with the product rolled. After running almost continuously for $2\frac{1}{2}$ years during which time the mill rolled 218,515 tons of steel, the belt was taken off, cut up into narrow belts and used in various departments around the plant.

Besides stating that Rhoads Tannate Belts have out-produced all other previous makes on this drive, Atlantic Steel afficials calculated the belt cost per ton of steel produced at \$.0209 cents per ton, the lowest belt cost ever attained by them.



For More Information Circle No. 435 on Inquiry Card-Page 17

Also Noted . .

Six series of industrial casters with sealed raceways and sealed wheel bearings that keep lubricants in and foreign materials out are in production by The Rapids-Standard Co., Inc., Dept. SC, 342 Rapistan Bldg., Grand Rapids 2, Mich. The seals protect against moisture, steam, acids, grease, grit chemicals and other destructive conditions, insuring long caster life and reduced maintenance. Seals are available on caster models with individual load capacities from 175 lb to 1500 lb.

Circle No. 103 on Inquiry Card-Page 17

Stan

Jr.,

pany

New lightweight plastic pipe has been developed by Quaker Rubber Corp., Div., H. K. Porter Co., Inc., Philadelphia 24, Pa. It is made of 100% virgin polyethylene resin and is guaranteed to be non-toxic. It will not rust, rot or corrode. Typical applications are for water systems, sewerage and waste and for conveying industrial chemicals and gases.

Circle No. 104 on Inquiry Card-Page 17

Arkwright Finishing Co., Industrial Trust Bldg., Providence, R.I. will furnish on request free samples of its new tracing cloth. It is designed for speedier drafting and provides sharper prints and longer service. Transparency is superior and it has a finer surface.

Circle No. 105 on Inquiry Card-Page 17

Fulton Sylphon Div., Robertshaw-Fulton Controls Co., Box 400, Knoxville, Tenn., announces new type temperature regulators for use on internal combustion engines and other temperature control applications. The regulators contain a "Power-Pill" unit charged with a wax-like compound. When subjected to heat, the compound expands to generate a more powerful actuating force than old thermostatic units.

Circle No. 106 on Inquiry Card-Page 17

An improvement on round leather belting for various low-powered machines such as business machines, printing equipment, etc., is announced by Boston Woven Hose & Rubber Co., P.O. Box 1071, Boston 3, Mass. It is a V-belting that stretches less than round leather belting and resists slippage, oil and heat. Also, the fabric-and-Neoprene construction resists hook pull-out. Circle No. 107 on Inquiry Card—Page 17

For More Information Circle No. 436 on Inquiry Card—Page 17→

PURCHASING



the thread of this story depends on . . .

■ The coils manufactured by the world-famous Trane Company in La Crosse, Wisconsin, are the heart of the heating and cooling equipment manufactured by this company. Threaded cast iron headers are used in many of these coils. The job requires cleanly threaded, cleanly finished holes that must be absolutely rust-free to assure maximum trouble-free operation.

Up to 1936, various soluble oils had been tried but none was successful in eliminating work spoilage due to rusting. On the advice of a Standard Oil lubrication specialist a switch to Superla Soluble Oil was made with marked success.

Rejections due to rusting threads have been completely eliminated, while at the same time the quality of the threads has been excellent. In addition working conditions have been improved considerably-no odor development, no gumming up of machines.

SUPERLA Soluble Oil may help you find a happy solution

SUPERLA

Soluble Oil

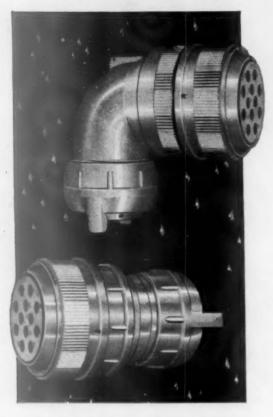
to your lubrication problem. Superla forms stable emulsions . . . helps provide good finish and tool life and has superior rust prevention properties. Call your Standard lubrication specialist today and find out how he can help you.

STANDARD OIL COMPANY



(Indiana)

NOW!



BENDIX-SCINFLEX WATERPROOF PLUGS

for use with multi-conductor cables

These new Bendix*-Scinflex waterproof plugs are a modification of our standard AN type "E" (environment resistant) connector. They are designed to meet all "E" performance requirements when used with multi-conductor cables. Each plug includes a modified AN3057B cable clamp which provides inward radial compression on multi-conductor cables. This unique feature completely eliminates cable strain—a common source of circuit trouble.

In addition, there are gaskets at all mating surfaces and an accessory sleeve is available to accommodate an extreme range of cable sizes. A folder describing this new waterproof plug—and the various sizes in which it is manufactured—may be obtained by writing our Sales Department.

**TRADE-MARK*

THESE BUILT-IN FEATURES ASSURE TOP PROTECTION AGAINST CIRCUIT FAILURE:

Shock and Vibration Resistant • Die Cast Aluminum Shell • Cadmium Plate—Olive Drab Finish • Moisture-Proof, Pressurized • High Arc Resistance, High Dielectric Strength Silver-Plated Contacts • Resilient Inserts



SCINTILLA

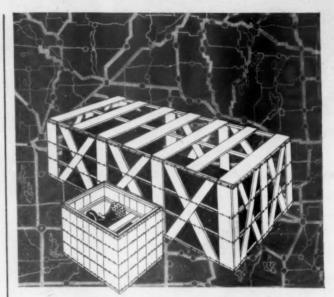
Bendix

SIDNEY, NEW YORK

Export Sales: Bendix International Division 205 East 42nd St., New York 17, N.Y.

Factory Branch Offices: 117 E. Providencia Avenue, Burbank, California • Brouwer Building, 176 W. Wisconsin Avenue, Milwaukee, Wisconsin • Stephenson Building, 6560 Cass Avenue, Detroit 2, Michigan • 512 West Avenue, Jenkintown, Pennsylvania • 8401 Cedar Springs Rd., Dallas 19, Texas • American Building, 4 South Main Street, Dayton 2, Ohio

For More Information Circle No. 437 on Inquiry Card—Page 17 320



45 pounds or 2325 pounds
No matter where they're bound
SHIP THEM WIREBOUND!



Take a look at the boxes shown above and you'll get some idea of Wirebound's versatility. Pound for pound, Wirebound containers give your product the best possible protection. That's because they're made of high tensile steel wire and resilient wood ... a type of construction that guards against shock - protects while it carries. And Wirebound can carry any load, whether it's a 45 pound generator or a 2325 pound power saw. So, for a better, safer way to shiplook to Wirebound. Let a Wirebound Sales Engineer show you case histories that prove the point.



MAIL THIS COUPON NOW!

oom 1153,	327 South LaSalle Street, Chicago 4, Illinois
Have a	sales engineer give me the whole story
Send me	a copy of "What to Expect from Wirebounds"
Name	
Firm Name_	
Address	
City Zone o	and State

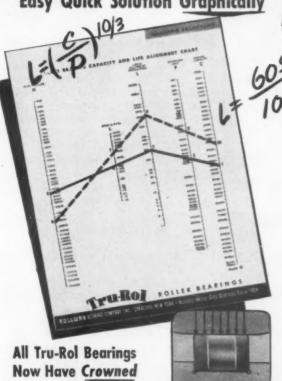
For More Information Circle No. 438 on Inquiry Card—Page 17 PURCHASING

New Catalog

FEATURING

An accurate, simplified way to apply the RBEC*formula when selecting cylindrical **Roller Bearings**

Easy Quick Solution Graphically

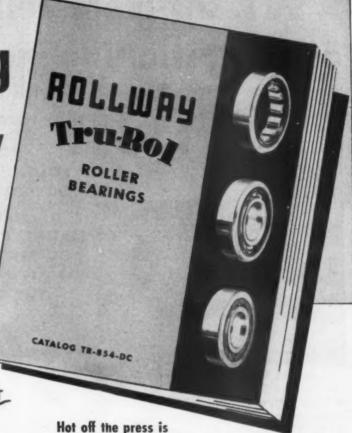


Rollers

Crowned Roller under full load stress uniformly distributed.

*Roller Bearing Engineers' Comm .- Anti-Friction Bearing Mfrs. Assn.

ROLLWAY



Rollway's Tru-Rol Catalog presenting...

New Rollway Alignment Chart

Now, for the first time, RBEC* formula is converted into simple nomogram! Complicated selection procedure eliminated! Using this graphic method, simply draw two lines-and find in a matter of seconds the proper bearing for your application.

Complete Description, Ratings, Dimensions

All the data you require on every size and type of Tru-Rol Roller Bearings. And here is introduced the new, exclusive quality mark in the Tru-Rol field— Crowned Rollers! Crowning eliminates end loading, produces uniform stress pattern along full length of roller, and extends bearing life.



Firm Name.....

SEND FOR YOUR FREE COPY

Included with Rollway's new 36-page catalog are extra copies of the new Alignment Chart. Mail coupon for yours today!

ROLLWAY BEARING CO., INC. Syracuse 4, N.Y.

Please send free copy of your new Tru-Rol Catalog with extra Alignment Charts.

.....Title...

Address.....

...Zone.....

RALES OFFICES: Syracuse · Boston · Chicago · Detroit · Toronto · Pittsburgh · Claveland · Milwaukee · Seattle · Houston · Philadelphia · Los Angeles · San Francisco

For More Information Circle No. 439 on Inquiry Card-Page 17

A NEW more reliable air conditioning method

with exact moisture control

FOR
YOUR PROCESS OR PROTECTION
FOR
TESTING PRODUCTS
OR MATERIALS
AT ANY TIME OF
THE YEAR

ASSEMBLING ELECTRONIC PARTS

This Niagara "Controlled Humidity" method gives you the MOST EFFECTIVE Air Conditioning because its cooling and heating functions are made completely separate from adding or taking away moisture. This assures you always a precise result. No moisture sensitive instruments are needed.

MOST FLEXIBLE. You can reach and hold any condition in response to instrument settings, or vary it as you wish.

EASIEST TO TAKE CARE OF. The machine is accessible, the control circuits are simple and easy to operate, and there are no solids, salts or solutions to be handled.

MOST COMPACT. It does a very large amount of work in a small space.

At normal atmospheric temperatures (unlike systems that use refrigeration to dehumidify) it needs no summer re-heat.





DRYING INDUSTRIAL MATERIAL

Write for Bulletins 112 and 122

NIAGARA BLOWER COMPANY

DEPT. PU. 405 LEXINGTON AVE. NEW YORK 17, N. Y.

Niagara District Engineers in Principal Cities of U. S. and Canada

The Cleveland Twist Drill Co., 1242 East 49th St., Cleveland 14, Ohio, says that a line of high speed cut-off blades, made from a molybdenum-tungsten alloy gives superior performance in cutting today's harder and tougher steels. Even at red heat, they maintain their hardness and abrasion resistance. They are available in sizes from 1/16" thick by ½" high by 4½" long to ¼" thick by 13%" high by 7" long.

Circle No. 108 on Inquiry Card-Page 17

To meet the need for high temperature fasteners in today's aircraft engines, industrial processes, exhaust manifold systems, furnaces and firewall assemblies a new line of self-locking nuts has been developed. The nuts, machined from AMS-5642 stainless, resists temperatures up to 1200 F. They are made in seven standard sizes with diameters ranging from No. 10 through 9/16 in. They are made by Standard Pressed Steel Co., Jenkintown, Pa.

Circle No. 109 on Inquiry Card-Page 17

Clark Equipment Co., Battle Creek, Mich. announces that an engine hour meter is now included as standard equipment on all of their gasoline powered fork trucks. The meter records up to 10,000 hours operation. Its use helps scheduling of inspection and preventive maintenance by keeping an accurate record of time a fork truck has operated since its last check-up.

Circle No. 110 on Inquiry Card-Page 17

Their compact design and ability to make or break circuits in all of three toggle lever positions is what makes a family of six new toggle switches outstanding, according to Micro Switch, Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill. This is made possible by the use of two single-pole, double-throw basic switching units in each switch. External dimensions of all six switches are the same.

Circle No. 111 on Inquiry Card-Page 17

Bed rail adapters for press brakes, made by the Wales-Strippit Corp., 345 Payne Ave., N. Tonawanda, N.Y. are used for fast, accurate mounting to layout pattern of independent self-contained hole punching and notching units. Spring-check steel balls provide tension to securely hold adapters in bed rail. They reduce tooling to a simple, quick assembly operation.

Circle No. 112 on Inquiry Card-Page 17

again with the finest

Starrett

the NEW no. 221 hi-PRECISION MICROMETER

READS DIRECT IN TEN-THOUSANDTHS WITH AUTOMATIC SPINDLE PRESSURE CONTROL

INDUSTRIAL

With this new Starrett

hi-PRECISION Micrometer, anyone can measure with the speed and accuracy of an experienced gage-maker. It reads direct in ten-thousandths of an inch - no Vernier to decipher. It makes every measurement with consistent spindle pressure - no relying on "feel"

Starrett No. 221 hi-PRECISION

OUTSIDE MICROMETER CALIPER Range 0-1" by .0001"

The new No. 221 features the patented Starrett hi-PRECISION thimble with direct reading ten-thousandths graduations plus an exclusive constant-pressure mechanism which automatically insures exact spindle pressure on every measurement. Use it for faster measuring at top accuracy, for inspection and quality control applications and for all precision measuring requiring consistent, high precision.

The new Starrett No. 221 hi-PRECISION Micrometer is now available as a 0 to 1 inch outside caliper. Ask your industrial distributor to demonstrate its advantages and superior accuracy . . . or write for complete information. Address Dept. P.



DIRECT TEN-THOUSANDTHS READINGS

The patented Starrett hi-PRECISION Micrometer features dual thimbles. The inner thimble with every thousandth numbered for positive identification is used to read thousandths in the conventional way. The outer thimble with large, widely spaced, numbered graduations gives direct readings in ten-thousandths.



ORLD'S GREATEST TOOLMAKERS"

Visit the Starrett Exhibit

NATIONAL METAL EXPOSITION

NOVEMBER, 1954

For More Information Circle No. 441 on Inquiry Card-Page 17

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Stainless Tubing & Pipe

HERE'S IMPORTANT NEWS!

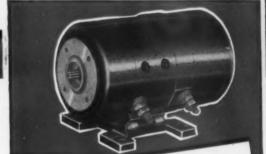
PESCO "COORDINATED-FRAME" MOTORS PROVIDE MAXIMUM POWER WITH MINIMUM WEIGHT AND SPACE

For AC or DC motors that pack *dependable* power into a small space—Contact Pesco!

Whether your problem is one of space, or of weight, you will find that Pesco "coordinated-frame" motors will give you the one BEST answer to your specific problem.

To begin with you can rely on Pesco motors to deliver dependable maximum rated power—from the smallest and lightest practical unit! And Pesco can meet your installation and operating requirements exactly by custom building your motor from standardized parts—using any of a series of coordinated frame sizes. This will provide lower unit cost and greatly simplify the problem of stocking service parts.

Pesco engineers will be glad to show you the great advantages that Pesco "coordinated-frame" motors will bring to your product—in installation, in operation, and in servicing. Simply call or write the Home Office, Bedford, Ohio.



PESCO AC OR BC ELECTRIC MOTORS

Various types are available to fit any specific requirement, combining all advantages of custom design with ment, combining all advantages of custom design with standard parts. AC Induction: 1 or 3 phase, 400 cycle standard parts. AC Induction: 1 or 3 phase, 400 cycle standard parts. AC Induction: 1 or 3 phase, 400 cycle standard parts. AC Induction: 1 or 3 phase, 400 cycle standard parts. AC Induction: 1 or 3 phase, 400 cycle standard parts. Action of the compound: 6 to 120 volts, 01 to 11.0 hp at various compound: 6 to 120 volts, 01 to 11.0 hp at various speeds—all types of enclosures, continuous or interspeeds—all types of enclosures, continuous or interspeeds—all types of enclosures.





Call or write the Home Office, Bedford, Ohio for full information on these outstanding PESCO products.















PRODUCING THE BEST IN HYDRAULIC EQUIPMENT AND ELECTRIC MOTORS

PRODUCTS DIVISION

BORG-WARNER

CORPORATION

oduction

BEDFORD, OHIO

NG



Featuring Darnelloprene treads - a soft, resilient Neoprene rubber compound that has superior qualities in resistance to oils, waxes, most chemicals and oxidation - these casters offer ease of movement, quietness and protection for floors.



For More Information Circle No. 444 on Inquiry Card—Page 17

\$31,000 Saved By Cooperation Between Vendor and Chemical Corps Purchasing

Cooperative efforts of the New York Chemical Procurement District of the Army Chemical Corps and a vendor recently brought a reduction in manufacturing costs and a voluntary refunding of \$31,307 to the Government.

The George W. Luft Company, Long Island City, N.Y., was awarded a contract by the District office for several types of clips used for the detection of toxic chemical warfare agents. The clips are composed of a series of lead tubes attached to a lignolite board. Each tube is a protective covering for an inner capillary tube containing a quantity of specially prepared silica gel, which reacts characteristically upon exposure to toxic agents. There are various types of clips for each known war gas.

Designing and fabrication of this specialized equipment requires the application of the most rigid quality control techniques, since all components and the final product must conform to rigid inspection standards.

During the production of the clips, technical personnel of both the contractor and the Chemical Corps continually developed techniques that furthered efficient operation and assured delivery of the item on schedule. Many conferences resolved production and specification difficulties. At all times during the manufacture of the component items, the Chemi-

cal Corps had a resident inspector assigned to the facility. This assured prompt validation of component items and the contractor was able to maintain a continuous production schedule.

The cooperative endeavor has been hailed as an outstanding example of the Government's and industry's concerted efforts to further the defense program.

Improved Barrel Nickel Plating Process Announced by H-VW-M

An improved nickel plating process for barrel electroplating, announced here by Hanson-Van Winkle-Munning Co., produces fully-bright ductile white deposits that have low stress.

The process, which has recently undergone extensive commercial testing, is also characterized by stability of plating solution over long periods, and deposits that require no activation prior to chromium plating.

Called Nickel-Lume Barrel Plating, the new process is the adaptation of H-VW-M's new standard Nickel-Lume bright nickel bath to barrel electroplating. Typical products handled include small automotive parts, jewelry, novelties, toilet articles, hardware, fasteners and screws.



Lt. Col. Frederick J. Hurley, Commanding Officer, New York Chemical Procurement District, receives a check in the amount of \$31,307.25 from Mr. Harry A. Haus, Vice-President of the George W. Luft Co. 1st Lieut. Frances Berg, Public Information Officer, New York Chemical Procurement, looks on. This check represented a voluntary refund to the government from the George W. Luft Co., as a result of savings achieved through close cooperative efforts of the Chemical Procurement District and the contractor on the production of detection devices for the Army Chemical Corps.

N



Think of CENTRAL



PRECISION PRODUCTS—The many variations of Central (patented) Wing Nuts meet the demand for manual adjustment methods of assembly. Made of steel or brass with ample wing spread and base areas, they are threaded to spin on and grip securely.

SALES ENGINEERING — The Central factory-trained man in your territory knows hundreds of case histories on the advantageous use of Central Stamped Wing Nuts. Chances are, he can point to concerns of your type and size now using them efficiently and profitably. Central also produces pressed wing nuts in four standard patterns, brass or steel, with standard threads.

3 COMPLETE FACTORY STOCKS—Central Stamped Wing Nuts and all items in Central's most complete line of standard fasteners are carried in stock at the addresses shown. Write—wire—phone—teletype for quick deliveries now.

SERVING INDUSTRY MORE THAN

40 YEARS







Way Can Depend on Consession



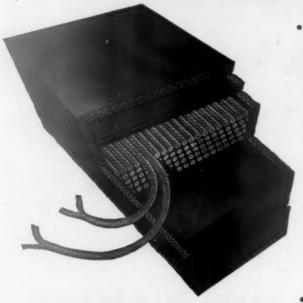
CENTRAL SCREW COMPANY

3501 SHIELDS AVE., CHICAGO 9, ILLINOIS 3028 E. ELEVENTH ST., LOS ANGELES, 23 CALIF. • 149 EMERALD ST., KEENE, N. H

For More Information Circle No. 445 on Inquiry Card-Page 17

ING

THESE FEATURES HAVE SOLVED V-BELT PROBLEMS LIKE YOURS



. . . in Multiple Belts

DURKEE-ATWOOD

VERTICAL

MATCHING

The power-transmitting efficiency and the durability of multiple v-belt drives varies with the precision achieved in matching. Static balancing is not adequate. To assure precise matching, Durkee-Atwood balances multiple v-belt drives *Iso-Dynamically*, matching belts while running under full load. Equal in length, equal in tension, Durkee-Atwood matched v-belts give you a more efficient, more durable drive.

... in General Duty Belts

DURKEE-ATWOOD

HIGH CORD LINE

DESIGN and CONSTRUCTION

Durkee-Atwood engineers brought v-belt maintenance costs down by moving the cord line up. The high cord line places the entire body of the belt under compression forcing the entire sidewall against the sheave reducing slippage. Wear is absorbed evenly by a greater area of the sidewall, reducing wear and prolonging belt service.

SPECIAL MULTIPLE V-BELTS

Durkee-Atwood Multiple V-Belts are also available in special constructions for specific applications as outlined below.

CLASS 3 - MULTIPLE (All Neoprene)

OIL RESISTANT HEAT RESISTANT CLASS 4—MULTIPLE HY-LOAD (All Neoprene)
FOR EXTRA FORTY PER CENT HORSEPOWER RATINGS

OIL RESISTANT
HEAT RESISTANT
STATIC CONDUCTING (Upon Order)



A COMPLETE LINE OF V-BELT DRIVES FOR INDUSTRY

WAREHOUSES IN ATLANTA, CHICAGO, CLEVELAND, DALLAS, NEWARK, OAKLAND

Dept. P-11 Phone: MAin 0441

DURKEE-ATWOOD CO., Minneepolis, Minn.

FORM NO. 551



Okolite-Okoprene unshielded 5kv feeders entering basement of the switchgear room from the switchgear above.

Okonite unshielded 5kv cables help Lockheed assemble the Super Constellation

At the Burbank plant of the Lockheed Aircraft Corporation, home of the famous Constellation and Super Constellation, these unshielded 5kv Okolite-Okoprene feeders have been in service since 1941 . . . and there has never been a failure. Operating at 4160 volts, the feeders connect the main switchgear room to substations throughout the plant. The latest inspection showed them to be in perfect condition. This is another example of the long, outage-free service given by Okolite-Okoprene rubber-insulated cables.

In the critical, widely-used 3 to 5kv range, ordinary cables must be shielded. However, Okolite-Okoprene cables provide a tremendous advantage because they do not have to be shielded, even for voltages as high as 5kv. Here's why. Okolite-Okoprene cables do not develop harmful static discharge. Furthermore, Okoprene has excellent ozone resistance, preventing corona cutting. In addition, Okoprene's high surface resistivity limits the magnitude of longitudinal drainage currents which can flow to ground at a contact point, thereby preventing cable burning. Thus, users of Okolite-Okoprene cables for 5kv operation are assured all the advantages of unshielded cables . . . reduced cable installation time and cost . . . quick and easy splices and terminations . . . valuable space saved at terminations in crowded junction boxes . . . reduced possibility of cable failure due to improper splicing or terminat-

Okonite's new 128-page Bulletin PG-1085 gives complete information on Okolite-Okoprene rubber-insulated cables in the low voltage range from 0 to 5000 volts. This bulletin includes detailed cable construction features, engineering information, installation and handling techniques, instructions for splicing and terminating. Never before has all this

information been compiled in one book. Write for it to The Okonite Company, Passaic, New Jersey.

ing techniques.







NITE insulated cables

NOVEMBER, 1954

For More Information Circle No. 447 on Inquiry Card-Page 17

329



Your workers' hands face longer odds daily

To leave your men's hands unguarded is as serious a mistake as turning an alligator loose on your plant floor. Just check the record. Hand injuries are the most frequently reported, and result in the greatest production losses, the highest insurance premiums—costly, no matter how you look at it.

More and more safety men have learned that the best ounce of protection they can buy is Jomac® Work Gloves. The tough, twisted-loop construction of Jomacs gives your workers the resiliency and cushioning effect their hands require. Jomacs are sure protection against the hand hazards that threaten your men every day—sharp edges, rough surfaces, bruising blows.

Jomacs are an excellent buy for another reason: they actually outwear ordinary work gloves by 900%. They can be cleaned and reconditioned time after time, and this longer wear means less inventory on your stockroom shelf.



Jomac Work Gloves keep safety records up, insurance rates down. Describe your operations—temperature conditions, etc. We'll gladly recommend an economical Jomac Work Glove and send you a free sample pair. Jomac Inc., Department F, Philadelphia 38, Pennsylvania.

It pays to keep JOMACS on hand

JOMAC

Industrial Work Gloves
Outwear ordinary work gloves by 900%

PLANTS IN PHILADELPHIA, PA., AND WARSAW, IND.

For More Information Circle No. 448 on Inquiry Card-Page 17

Copper Supplies Plentiful, New Uses Being Developed

"Industry can look forward with confidence to copper being available in ever-increasing quantities," according to Mr. William A. Meissner, deputy director, Copper Division, BDSA, Department of Commerce. Addressing a meeting sponsored by the Copper and Brass Research Association, he emphasized that buyers "may specify copper for new products with the assurance that copper supplies will keep pace with an expanding market."

Copper consumption in 1953 was about 1,800,000 tons. By 1970, to meet the needs of our growing economy, it is anticipated that about 2,300,000 tons of the red metal will be produced. Where is the additional tonnage going to come from? For the past 30 years pessimists have been predicting that our copper resources would be exhausted in about 25 years. Despite the demands of two major wars, our reserves are still estimated to be adequate for 25 years.

Why haven't we run out of copper? The answer is that estimates of future supplies are based on current mining technology and ore reserves. The copper industry, through the years, has steadily developed new techniques for profitably extracting ore from less rich ores. In addition, continual exploration and development of new deposits has permitted a steady expansion of production.

Scrap is a big factor in considering our copper resources. Since the metal is practically indestructible, for every 5 pounds of the red metal entering the economy today, more than 3 pounds will ultimately return as scrap. In 1953, scrap provided about 22% of our copper supply. Imports accounted for another 29.5%. Thus, less than half of our copper came from production of domestic mines.

Though this metal has been used for centuries, new uses are constantly being found for copper. Applications are many in the electronics industry where copper's high conductivity, good surface finish, and excellent ductility make it the best metal to do the job.

During the recent period of controls, many industries were forced to find substitutes for copper. Where such substitutions resulted in a product which could do the job satisfactorily at lower cost, use of the substitute should and will be continued. However, when the substitution was made only because it

(Please turn to page 332)

you use tubing

HI-DUTY TUBE CUTTERS



Free-wheeling ball bearing action. Roller type with flare cut-off groove. Retractable reamer. Enclosed feed mechanism. Cut hard or soft tubing. No. 274-F for 1/8" to 1" O.D. tubing. Each \$3.85

INNER and OUTER REAMER

Reams both inside and outside edges of tubing, sizes 3/16" to 1-1/2" O.D. Hollow ground tool

No. 208-F Inner and Outer Ream

CUTTER for LARGER



Instant adjustment to tubing size by pushing on handle. Quick ratchet release.

SLIDE-TO-SIZE SAWING VISE



Instant adjustment to tubing size. Quick ratchet release. Assures square cut.

TWO-IN-ONE

TUBE BENDERS

Provide engineering service.

FLARING TOOLS with QUICK SLIP-ON YOKE



Exceptional ease and speed of operation. Yokes made of forged steel.

No. 195-F Flares 1/4", 5/16", 3/8", 1/2", and 5/8" O.D. tubing. Each \$5.15

PRECISION DOUBLE FLARING

TOOL

ROL-AIR FLARING TOOL



Flares and then automatically burnishes tubing. Makes finest flares you've ever seen. Flares rolled in air above die block. Makes stronger flares.

37° FLARING TOOL



For making precision S.A.E. double flares on soft steel tubing (such as Bundy or GM). Provides positive, accurate control of flare size. Can also be used for making single or double flares on soft copper or flares on soft aluminum tubing.

For flaring soft steel tubing to J.I.C. standards; also for making 37° flares on copper, aluminum, and fully annealed stainless steel tubing. Easy, single lever clamping. Flares 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

No. 437-F Imperial 37° Hi-Duty Flaring tool. Price each........\$3.95

steel cutters.



Form neat accurate bends to a short radius — any angle up to 180°. Calibrated. Open side type — slip over tubing where bend is needed.

Specify Catalog Number and Size

Cat.	O.D. of Tubing	Nom. Tube Size	Rad. to C. of Tube	Price
364-F	3/16"	-	7/16"	\$6.35
364-F	1/4"	-	9/16"	6.35
364-F	5/16"	1/8"	11/16"	7.35
364-F	3/8"	1/4"	15/16"	7.20
364-F	1/2"	3/8"	1-1/2"	12.15
364-FA*	5/8"	1/2"	2-1/4"	23.15
364-FA*	3/4"	5/8"	3.	-,31.00

FULL RANGE TUBE BENDERS



Heavy duty. Complete with necessary forming wheels in steel chest.

O.D. Tube	Nominal Sizes	Rad. to C. of Tube
1/4"	1./011	3/4"
3/8"	1/4"	1-1/4"
5/8"	3/8"	2-1/2"
3/4"	5/8"	3"
1/0	5/4	

No. 360-F below. Each	Bends	4	sizes	showr \$48.00
3/8"	1/4"		1-5	/8"
5/8"	5/8"		2-1	74"

Very handy where only two sizes of tubing are used. Dual size shoes and forming wheels. Calibrated.

Calibrated.

No. 361-FA Bends 5/8" and 7/8"
O.D. tubing. (Nominal sizes—1/2"
and 3/4".) Bend Radius: 5/8" O.D.
—2-1/2"; 7/8" O.D.—3"......\$27.5
No. 362-FA Bends 1/2" and 5/8"
O.D. tubing. (Nominal sizes—3/8"
and 1/2".) Bend Radius: 1/2" O.D.
—2"; 5/8" O.D.—2-1/2".....\$23.50
No. 363-FA Bends 3/4" and 7/8"
O.D. tubing. (Nominal sizes—5/8"
and 3/4".) Bend Radius: 3/4" O.D.
tube—3"; 7/8" O.D.—3".....\$33.75

UNIVERSAL GEAR-TYPE BENDERS



Bends any type of tubing including hard temper, heavy wall steel. Also pipe. High gear ratio makes bending easy.

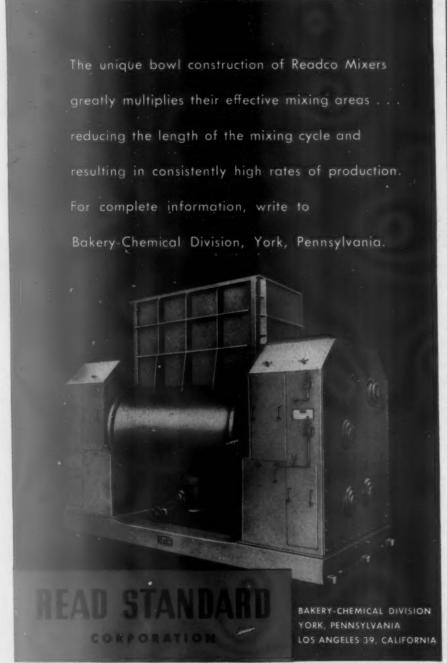
Cat. No.	O.D. of Tube	Nom. Tube Size	Rad. to C. of Tube	Price Each
270-F	3/8"	1/4"	1-3/4"	\$12.55
270-F	1/2"	3/8"	2-1/2"	16.90
270-F	5/8"	1/2"	3"	20.30
270-F	3/4"	5/8"	4"	25.50
270-F	7/8"	3/4"	4"	26.60
270-F	111	-	4**	27.85
270-F	1-1/8"	1**	4"	27.85

Your Imperial Distributor also carries other models of IMPERIAL tube cutters, flaring tools, tube benders as well as refacing tools, swedging tools, pinch-off tools, reamers and test plugs. Ask for Catalog No. 3011-A. See Your Industrial Distributor

ers in Tube Fittings and Tube Working Tools

IN THE PAPER INDUSTRY...

READ STANDARD SUPPLIES LEADING
MANUFACTURERS WITH THE EQUIPMENT THEY
NEED FOR RAPID DISPERSION OF INGREDIENTS
IN PREPARATION OF HIGH DENSITY COATINGS



For More Information Circle No. 450 on Inquiry Card-Page 17

(Continued from page 330)

was felt that there wasn't enough copper to go around, the buyer should reevaluate the supply situation. Copper is now readily available and there is every reason to believe that supplies will be ample for a long time to come.

The Copper & Brass Research Association feels sufficiently assured of the supply problem to actively work on the development of new uses for the red metal. According to R. C. Diehl, president of the Chase Brass & Copper Co. and the Copper & Brass Research Association, "Copper and its alloys are definitely part of our industrial life—today and tomorrow."

Says Federal Coal Buying Policies Bring Distress Prices

1 1 1

The present purchasing policies of the federal government are "doing more to distress coal marketing" than any other single influence, according to David L. Francis, president, Princess Elkhorn Coal Co., Huntington, W. Va. He spoke at a recent meeting of the Natural Resources Committee, Chamber of Commerce of the United States.

The effect of "this tremendous power . . . being exerted to drive coal prices down month after month" has extended to other producers of electric power and to additional coal markets, Mr. Francis declared in calling for a policy revision to "keep coal prepared for the additional role as a major producer of energy and emergency fuel."

Pointing out that rates for electricity produced by public utilities are generally established to provide management with a fair return on the investment and to protect the public from being overcharged, Mr. Francis condemned the practice of taking coal on a "spot" market and "bidding one coal company against the other" in disregard of production costs.

The West Virginia and Kentucky coal operator recommended that both government and public utilities contract for base fuel loads on a competitive basis for from one to ten years, purchasing only the "variable" load on a spot basis. Distress-priced coals should be disregarded in the establishment of price policy, he said, and importance should be placed on the cost of production as presented by the more efficient producers.



Added Evidence

Everyone Can Count on VEEDER-ROOT

In figuring out new systems of automatic electrical control, Veeder-Root Countrol can supply vital connecting links. For instance, this Predetermining Counter can be hooked into such a system to light a light, ring a bell, or actuate a mechanism to stop a machine or process at any pre-set point. And there are many other Veeder-Root Counters that can serve as "count-ponents" in almost any way desired. Or special counters can be designed for specific applications. Engineers in any industry, now engaged in working out automatic control systems, can count on Veeder-Root engineers to work with them on any problem where reliable facts-in-figures are needed.

VEEDER-ROOT INCORPORATED • Hartford 2, Connecticut



Chicago 6, III. • New York 19, N. Y. • Greenville, S. C. • Montreal 2, Canada Dundee, Scotland • Offices and Agents in Principal Cities

"The Name That Counts"



New Vary-Tally Multiple-Unit Reset Counter comes in any combination up to 6 banks high, and 12 units wide Write for news sheet and prices.

54

For More Information Circle No. 451 on Inquiry Card-Page 17



We make just one call to get the bolts we need

"We used to shop around for bolts. But no more. There's too much lost time that way. Now we make one call, for Bethlehem bolts, and we get the types and sizes we need. There's no delay at all."

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation



Bethlehem supplies every type of Fastener

For More Information Circle No. 452 on Inquiry Card—Page 17 334

For More Information Circle No. 453 on Inquiry Card—Page 17→
PURCHASING



*M.S.A. DUSTFOE #55—Lightweight breathing protection against dusts not significantly more toxic than lead.



*M.S.A. COMFO METAL FUME
— Effective protection against
harmful fumes from molten or
heated metals.



*M.S.A. COMPACT COMFO— Twin-filters remove fibrosis-producing and toxic dusts such as asbestos, aluminum, silica.



M.S.A. COMFO ULTRA-FILTER

—99.9% efficiency against radioactive dusts, particulate more
toxic than lead.



*M.S.A. COMFO CHEMICAL CARTRIDGE—For light concentrations of gaseous matter; particulate matter with filter.



M.S.A. GASFOE—Chemical cartridge protection against light concentrations of organic vapors, and acid gases.



*M.S.A. AIR LINE—Complete, versatile protection in any atmosphere that is not immediately harmful to life.



M.S.A. PROTECTIVE HOODS

—A variety of dust and paint
hoods made of Dynel cloth or
Vinyl plastic.

* U.S. Bureau of Mines Approved



There's an M·S·A RESPIRATOR for every BREATHING HAZARD

Because no *one* respirator gives the best protection for every job, complete selection is all-important. You get this advantage at M.S.A.

The variety of respirators described above will give you an idea of our complete line. At M.S.A., you can satisfy your specific requirements for breathing protection . . . get the respirator that's right for the job.

Important, too . . . M.S.A. Respirators provide the wearing comfort, low breathing resistance, and job visibility that encourage full-time respirator use. We'll be happy to give you complete details.

SAFETY EQUIPMENT HEADQUARTERS

Call the M.S.A. man on your every safety problem . . his job is to help you

MINE SAFETY APPLIANCES COMPANY

201 North Braddock Avenue, Pittsburgh 8, Pa.
At Your Service: 76 Branch Offices in the United States

MINE SAFETY APPLIANCES CO. OF CANADA, LTD.

Toronto, Montreal, Calgary, Winnipeg, Vancouver, Sydney, N.S. Representatives in Principal Cities in Mexico, Central and South America

Cable Address: "MINSAF" Pittsburgh



The best soft hammer your money can buy!



Tough, resilient water buffalo faces deliver plenty of power with full protection for delicate parts and finishes. Faces are easily replaced, and comfortable Safety-Flare handle gives you non-slip grip. Work goes better with a C/R RAWHIDE law-Head. See for yourself.



ing industrial suppliers. Also C/R Rawhide mallets and Rawhide mauls. For further information write Dept. 22

CHICAGO Mawhide MFG.CO. Chicago 22, III.

For More Information Circle No. 454 on Inquiry Card-Page 17

Purchasing-Engineering Teamwork Shown to Industrial Advertisers

he importance of teamwork in industrial purchasing was emphasized strongly at a recent meeting of the Eastern Industrial Advertisers, Philadelphia chapter of the National Industrial Advertisers Association

The meeting was moderated by Stuart Heinritz, editor of PUR-CHASING. Mr. Heinritz introduced the film "Industrial Purchasing," which shows graphically the cooperating of the purchasing, manufacturing, designing, and sales departments of a modern industrial company in the production of a new type of compressor for refrigerators.

Engineering-Purchasing Demonstration

Following the film a joint demonstration was given by Herbert R. Otto, chief engineer, and Joseph G. Van Nest, vice president in charge of purchasing, Purolator Products, Rahway, N.J. They explained, step by step, how the parts for a new filter were specified and bought, what was done to cut corners and

save money without sacrificing quality, and how different methods of manufacture proved practical for different sizes and shapes of component parts.

Harold Snyder, of Arcos Corporation, chairman of the meeting, was introduced by Roland G. E. Ullman, Jr., president of The Roland G. E. Ullman Organization, and president of EIA.

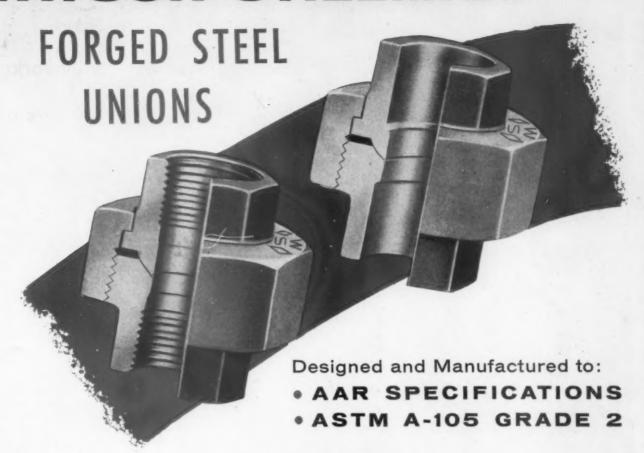
About 30 members attended the EIA clinic preceding the meeting. At that session, John P. Moorhouse, purchasing agent of Standard Pressed Steel Company, Jenkintown, Pa. led the discussion on the subject, "Can Advertisers Forget the Purchasing Agent?" He was introduced by Richard E. Gawthrop of Minneapolis - Honeywell Regulator Company, chairman of EIA's clinic committee.

Mr. Moorhouse explained the functioning of his company's purchasing department, and the importance of manufacturers reaching the purchasing agent with their adver-



Seen at the first 1954-55 dinner meeting of the EIA in Philadelphia's Poor Richard Club October 7 were (I to r)—William B. Daub, Sun Oil Company; Roland G. E. Ullman, Jr., president of The Roland G. E. Ullman Organization and president of EIA; Harold E. Snyder, Arcos Corp.; and Stuart F. Heinritz, editor of PURCHASING Magazine, who moderated the evening's program.

WATSON-STILLMAN



We're happy to announce the arrival of these fine additions to our Forged Steel Fittings Family. Designed by Watson-Stillman engineers and manufactured on our new high precision machinery, these unions give you the utmost in serviceability in high pressure piping systems.

These outstanding features are just what you've been looking for:

- 1. All parts are drop-forged of high quality steel for maximum strength and toughness to resist shock and vibration.
- Heavy, octagonal-shaped walls give you added protection at high pressures.
- 3. Steel-to-steel seat with ball-to-angle mating surfaces insures a tight, leakproof seal.
- 4. Nuts are plated with a heavy coat of cadmium to resist galling and seizing.

 Watson-Stillman Unions are available in both Screw-End and SocketWelding Types in sizes 1/8" to 2". For complete technical information write

Sold Through Leading Distributors



Send today for Bulletin U-1



WATSON-STILLMAN FITTINGS DIVISION

HKP H. K. PORTER COMPANY, INC. Roselle, New Jersey

8

For More Information Circle No. 455 on Inquiry Card-Page 17

today for our new Union Bulletin.



Photo courtesy Clark Grave Vault Co.

Use this complete strapping service!

TRAINED Brainard salesmen can help you develop more efficient systems for packaging, palletizing, carloading, bundling, export crating, and warehousing. For example, here's salesman Jack Worrel of Columbus, giving an onthe-job demonstration to a customer shipping heavy steel vaults. Properly applied steel strapping holds the corrugated covering securely in place, protecting the product against damage in transit or in storage.

It's a wise idea to add a Brainard

salesman to your materials handling team. He's factory trained in handling and shipping methods. He's equipped to study your operations, make specific recommendations, and demonstrate proper strapping methods to your personnel.

Send coupon now for an analysis of your handling and shipping operations...it can lead to improved efficiency and substantial savings.

Brainard offices located throughout the United States. In Canada: Brainard Steel Canadian Division, Toronto.

STRAPPING TAPES TOO!

Brainard now offers pressure-sensitive and gummed strapping tapes and dispensers, in addition to its complete steel strapping service. Call us for unbiased recommendations — and to centralize your strapping purchases.





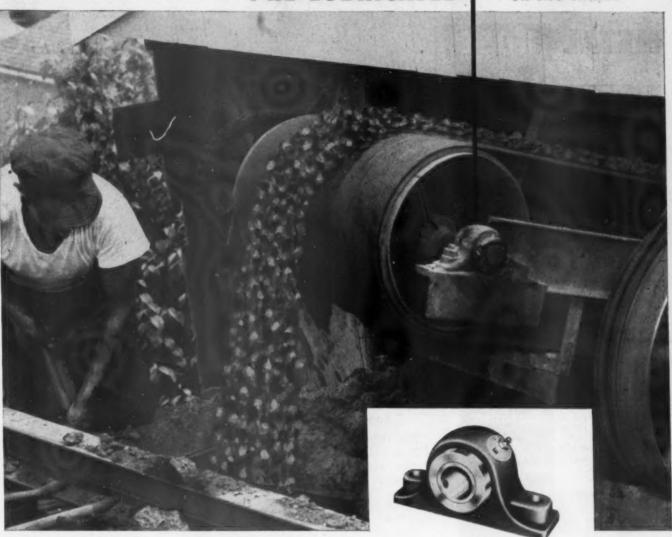


Send booklet or	n Brainard Strapping System n Brainard Strapping Tapes strapping system analysis ns.
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FACTORY ADJUSTED PRE-LUBRICATED

SEALED

-ready to mount on the shaft!



DODGE-TIMKEN America's Quality Pillow Block

Extra measures are taken to build superior quality into Dodge-Timken Bearings; and extra precautions are taken to keep that quality <code>intact-from</code> the factory to distributor to you to your machines.

These bearings are sealed in manufacture—an integral part of Dodge-Timken design. Their inbuilt precision is protected both on and off the shaft. That is one reason why they easily deliver a minimum of 30,000 hours of service. Want evidence? Look around you. No other pillow block is so widely used on the nation's tough jobs. Dodge-Timken dependability has been proved in millions of installations.

There are 5 types of Dodge-Timken Pillow Blocks for all types of service, in shaft sizes from 1%6" to 10". Also Dodge-Timken Hanger Bearings, Flange Bearings, Take-ups.

DODGE MANUFACTURING CORPORATION, 1300 Union St., Mishawaka, Indiana

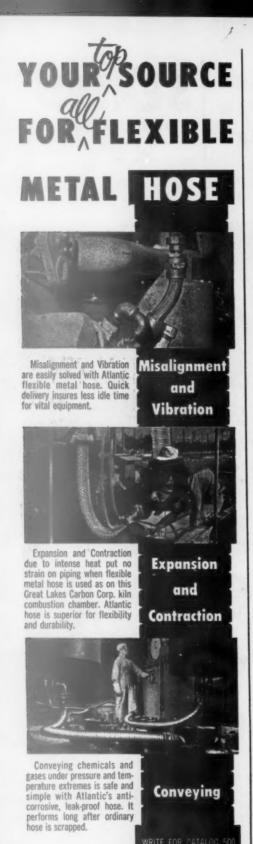
DODGE

of Mishawaka, Ind.



CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone directory, or write us.

For More Information Circle No. 457 on Inquiry Card-Page 17



See our Catalogs in Sweet's Files for Product Designers and Mechanical Industries.

Manufacturers of Seamless and Interlocking Flexible Metal Hose in Steel, Stainfess Steel, Monel, Bronze. Sizes 1/2"-36" I.D. with appropriate fittings.

ATLANTIC METAL HOSE CO., INC. 319 Dyckman St., New York 34, N. Y.

For More Information Circle No. 458 on Inquiry Card—Page 17

AMA Head Sees "Nothing but Long Range Growth for Economy"

"Nothing but long-range growth for the economy ahead" is predicted by Lawrence A. Appley, president of the American Management Association. Mr. Appley's prediction appears in the AMA thirty-first annual report, just released to the 19,000 company and individual members of the non-profit management educational association.

"We are currently on the threshold of another unprecedented era of economic growth which is destined to surpass the technological and managerial accomplishments of the past," Mr. Appley declares. Over the past quarter-century, he notes, the nation's output of goods and services and the standard of living of the American people doubled while the population increased but a third. The prime factor, according to Mr. Appley, in this record of high efficiency and economic progress has been the growth and development of management competence and technique.

The American Management Association also, he reports, has undergone a period of "tremendous

growth" during recent years and now is ten times bigger than it was a decade ago. The association's "rapid rise to pre-eminence in the field of management education is graphic proof," he says, "of the deep-down sincerity of the American manager's desire to do a better job. It is evidence of a tremendous wave of management consciousness rapidly gaining headway throughout the ranks of American business and industry."

Because of the increasing complexity of the management job, Mr. Appley points out, people in management are recognizing, as never before, that management is an activity unlike any other, requiring specific qualifications, tools, and skills. Thus the individual in management is coming to realize that he needs more and more preparation and continuing education to equip himself for his responsibilities. Management personnel are seeking all kinds of assistance in the performance of their tasks and "literally, are going back to school."

New Marketing Publication Announced by BDSA

The Office of Distribution, Business and Defense Services Administration, today announced the conversion of their monthly publication, the "Distribution Data Guide," to a subscription basis commencing with the October 1954 issue.

Since the first issue in March of this year it has been compiled and published monthly on a free basis.

The Guide lists brief annotations of selected recent publications and reports, both government and nongovernment, which contain basic information and statistics for use in market research, merchandising, sales promotion, advertising, and allied subjects of interest to businessmen and others engaged in the distribution of goods or services.

A year's subscription to the *Guide* includes 12 monthly issues and two cumulative subject indexes which list material annotated in the preceding six months. The annual subscription rate is \$2.00 to a domestic address.

Subscriptions will be received by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., payable by check or money order in favor of the Superintendent of Documents. Subscriptions may also be made through local Department of Commerce Field Service Offices.

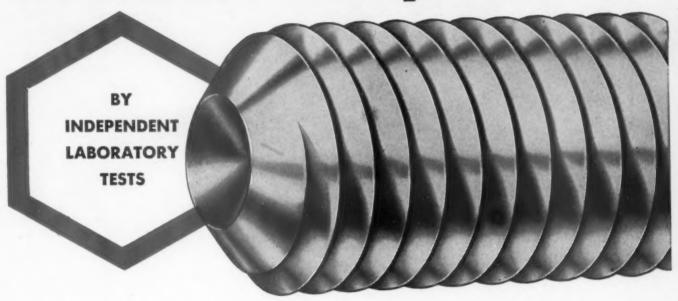
New Booklet on Die Casting

"Bunker Hill Zinc and Die Casting" is the title of a new illustrated booklet published by the St. Joseph Lead Company. Contained in the booklet is technical data on the role of zinc as a base metal for die casting alloys, the variety of commercial finishes which may be applied to zinc base die castings and the manifold applications of such castings in industry.

The booklet discusses the advantages of die casting as a method of production and, historically, how the principle of Mergenthaler's linotype machine was adapted to the process. Also included is a step-by-step description of the electrolytic method for refining 99.99% zinc and the effect of its commercial production on the growth of the die casting industry.

Copies may be obtained from the St. Joseph Lead Company, 250 Park Avenue, New York 17, N.Y.

ALLENPOINT SET SCREWS Proved 5 Ways Better



Tested by a prominent independent laboratory against standard cup point and serrated point set screws, Allenpoint socket screws topped them all. In every test — carefully set up to simulate actual installations — Allenpoints outperformed and outlasted competing set screws.

BETTER Cup Point Pattern

Allenpoints make the all-important full circle pattern when tightened up to ordinary pressure — the normal force exerted to tighten a socket screw by hand.

BETTER Resistance to Rotation

Deep driven Allenpoints hold longer under increasing torsional strain than any other set screw tested.

BETTER Cup Point Depth

The deeper they drive the tighter they hold. Allenpoints — again at average wrenching pressure — penetrate smoothly and deeply with no gouging, no cutting action.

BETTER Resistance to Longitudinal Thrust

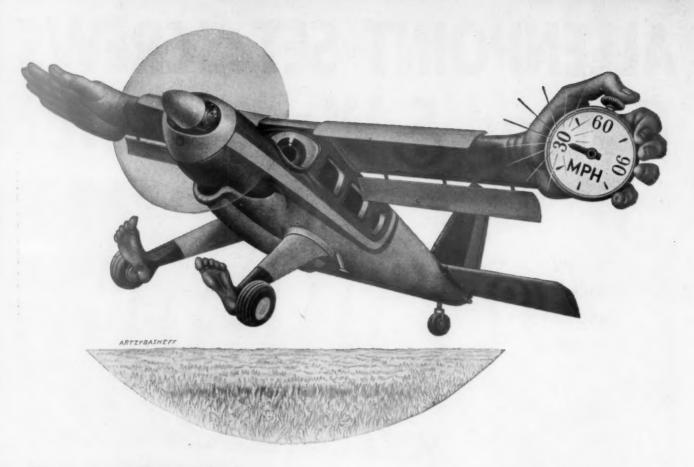
Tighten an Allenpoint held collar to a shaft with a wrenching pressure of only 150 inch pounds. It will take 1200 lbs. of longitudinal thrust to start that collar along the shaft. No pipe extension, no twisted wrenches to get effective tightening pressure. Allenpoints hold tightly at average hand wrenching pressure.

BETTER at Withstanding Vibration

Long after other set screws loosen their grip, Allenpoints hold firm under repeated vibration.

Write our Advertising Department for a detailed, technical brochure on these comparative tests. It's got the facts on the Allenpoint story.





New speedster that can "crawl" without "stall"

Powered by a dependable Lycoming engine, this executive plane cruises above 150 mph -yet lands at 30 mph.

Now you can fly at 30 mph-with no danger of spin or stall. Take off and land in the "backyard" space of only 75 yards. And fly completely relaxed in the knowledge that your power plant is a dependable air-cooled engine from Lycoming.

It is small wonder that the Helio Aircraft Corporation expects its advanced design plane to open up a new era in private flying.

Naturally, we are proud that once again Lycoming contributes to aviation progress. Perhaps we can also help meet your need for air-cooled power.

Whatever your problem . . . if it can be solved by the assistance of any of the services listed with our signature . . . look to Lycoming.

Aircraft Engines Industrial and Tank Engines Engine Overhaul Generating Units

Turbine Engineering and Research Engineering Design and Development Hardened and Ground Precision Parts Gears and Machine Parts

Complete Assemblies Heat-Treating and Plating Steel Fabrication Castings Boilers



Purchasing agents

please note.

FOR RESEARCH . FOR PRECISION PRODUCTION LOOK TO

plants in Stratford, Conn., and Williamsport, Pa.

For More Information Circle No. 460 on Inquiry Card-Page 17



It seats four . . . is powered by Lycoming's 260-h.p. air-cooled engine. Send for Free Booklett "THE LYCOMING

STORY"... 40 interesting, illustrated pages showing many ways Lycoming is ready to help you. Write for it on your letterhead. the stor

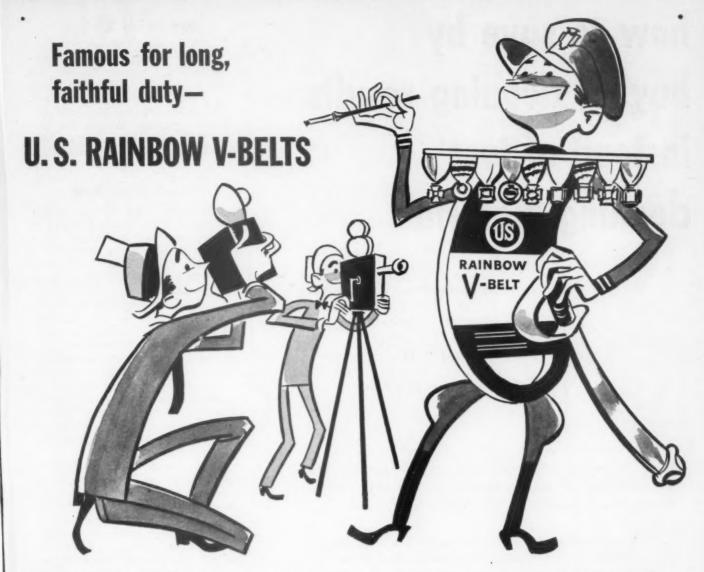
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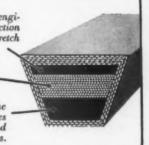
When it comes to chalking up endurance records on the toughest of drives, U. S. Rainbow® V-belts always stand out. Heavy shock loads, extra-rough operating conditions don't bother these belts. A special latex treatment of the pulling cords reduces the heat generated by constant flexing—provides maximum adhesion between the component parts. Protective jackets prolong belt life by keeping out dirt. U. S. Rainbow V-belts are also available in special constructions to resist oil, high temperatures and static electricity. Order from your distributor, or con-

tact any of our 26 District Sales Offices, or write to address below.

Top rubber cushion in closely engineered balance with the lower section ... to keep cool under constant stretch and return.

Equa-Tensil Cord Section all cords scientifically placed, each pulling its share of the load.

A sturdy level cushion for the Equa-Tensil Cord Section provides structural firmness for V-grooves and over the flat pulley of V-to-flat drives.



A COMPLETE DRIVE SERVICE

MULTIPLE V-BELTS · F. H. P. V-BELTS · SHEAVES
FLAT BELTS AND BELTING · SPECIAL PURPOSE BELTS

"U. S." Research perfects it.
"U. S." Production builds it.
U. S. Industry depends on it.

UNITED STATES RUBBER COMPANY MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

For More Information Circle No. 461 on Inquiry Card-Page 17

how to save by buying cleaning results instead of just cleaning materials

for example: One Company saved \$1,800 cleaning four heat exchangers in place

for example: A Food Processor cut cleaning-before-repainting-time from 2 days to 3 hours

Results—not merely cost per pound or gallon—determine your company's cleaning costs. You're bound to get the best possible results when you take advantage of Oakite's highly developed Technical Service. This is proved by the typical experience of others:

\$1,800 saved on one job of cleaning four heat exchangers. Tube bundles formerly pulled out for cleaning. Oakite methods and materials permitted thorough cleaning right in place, saving costly handling time.

2-day-cleaning cut to 3 hours when Oakite cleaning experience, steam-detergent gun and the right cleaning materials were applied to clean a food plant's equipment for repainting.

Remember—Oakite provides all the necessary elements needed for best results (1) exactly the right cleaner for the job from over 80 Oakite materials (2) efficient time-and effort-saving methods (3) the cleaning knowledge, experience, advice of the Oakite Technical Service Representative who'll do his utmost to give you the best possible job at the lowest possible cost. Call in your nearby Oakite Man. Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.



Technical Service Representatives Located in Principal Cities of United States and Canada

How To Buy Castings

(Continued from page 71)

Another instance involved breakage of large castings in end use service. One of the castings which failed was broken up for inspection, and the trouble was traced to the misuse of a loose piece in the core box. If a core maker were paid \$500 to reproduce the error he could not do it.

Foundry Know-How

Design often affects the cost of a casting. In many cases, simple design changes such as changing contours or running bosses to the parting line will elimanate cores and result in a simple squeezer job. It is probable that a lot of pattern equipment currently in shops is not designed for the most economical production. This is a field in which the foundryman can be of material assistance to his customers by taking the initiative in suggesting more suitable equipment and methods of molding. Most engineering departments are receptive to any reasonable requests, and are willing to accommodate a foundry in an effort to reduce costs.

Today, quality control departments are in the ascendancy. Their standards can be applied to many phases of foundry operation. Except for the fact that installing such a system indicates progressiveness, it is of no direct concern to the buyer. He is primarily concerned with the end result. Are the cored holes clean and free from fins? Does external and internal appearance meet agreed standards? Does the casting conform dimensionally to the blueprint? Is it free from shifts, sags, or swells? These things can occur in a casting in spite of quality control, unless there is a follow-through in constant, capable checking of the mechanical procedures. Sometimes we find that supervision is spread too thin to do an effective job. We have indicated to our sources of supply our willingness to go along in the matter of providing special checking gauges, prepared in our tool design department, to assist in the proper checking before castings get into the machining processes, where many of the dimensional troubles first come to light.

We don't except a foundry to stand the cost of maintaining pattern equipment. Yet the foundry is in the best position to keep a good watch on it, and to apprise the buyer of the need for repairs. Many times,

(Please turn to page 346)

For More Information Circle No. 463 on Inquiry Card—Page 17-> Purchasing

20th
Century

the
persuasive
abrasive

Make a mental note to specify 20th Century *Normalized shot or grit for your abrasive requirements. It's manufactured under close laboratory control to assure consistent high quality, greater uniformity and longer wear.

Foundries and metal-working plants throughout the United States and Canada have found 20th Century *Normalized, the persuasive abrasive, the answer to maximum production efficiency and economy.

Write for our new catalog No. 1153.

THE CLEVELAND

Metal Abrasive

CO.

811 East 67th Street • Cleveland 8, Ohio Howell Works: Howell, Michigan

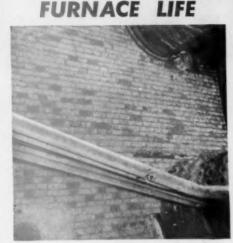
Various parts for these Caterpillar-built D8 tractors are peened and cleaned by 20th Century metallic abrasives.



One of the world's largest producers of quality shot, grit and powder — Hard Iron — Malleable (*Normalized) — Cut Wire — Cast Steel (Realsteel)

* Copyrighted trade name

COMBINATION FOR ONGER



ADAMULL FIRE BRICK AND

FIRE BRICK CEMENT

The above photo shows a multi-drum boiler in a nationally known chemical plant . . . being completely rebuilt with ADAMULL Fire Brick, bonded with famous ADAMANT Fire Brick Cement . . . this combination insures longer furnace life despite high temperatures and extreme spalling conditions.

ADAMANT Cement: ADAMANT has exceptionally high bonding strength at room temperature, which increases as the temperature rises. Impartial laboratory tests show that ADAMANT has a bonding strength of 800 lbs. at room temperature; 1,270 lbs. at 2,600°F. This greater bonding strength protects the structure at the joints, where failure usually begins . . . therefore, linings last longer; production is maintained, repair costs and production materials saved; less "outage".

ADAMANT—Ready-Mixed and Easy to Use—available in air-tight drums of 100, 250 and 500 lbs. capacity. Write for useful literature about ADAMANT.

ADAMULL Fire Brick:

A super duty fire brick for use in furnaces operating at high temperatures and for the "tough spots" in all furnaces. ADMULL super duty brick will withstand more temperature, more slagging, more heat shock than first quality fire brick, and meet the A.S.T.M. specification for Super Duty Brick. Write for Literature.

We'll glady furnish the address of the BOTFIELD Distributor near you.

BOTFIELD

REFRACTORIES CO.

789 S. Swanson Street, Philadelphia 47, Pa.

In Canada Canadian Botfield Refractories Co., Ltd. 171 Eastern Avenue, Toronto

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How To Buy Castings

(Continued from page 344)

the foundry can handle simple repairs and bill the customer. If the repairs are extensive, returning it to the buyer for repair will not only result in putting the equipment into first-class condition, but will also enable the buyer to have the pattern completely checked dimensionally.

Whenever a new job comes up, we review the blueprint from the standpoint of design, complexity of core work, whether it is a heavy section or a light section job or, worse, a combination of light and heavy sections. We also check metal specifications and potential quantities involved. From this check, we decide which of our present sources is best equipped to handle the job. The blueprint is sent to the selected foundry for its pattern recommendations. Often the recommendations will include suggestions for design changes.

Working Together

The purchase record tells us many things about a supplier's dependability and promptness in handling our orders, which is important. But there are many things that a card entry does not show. Visiting the foundry gives us a valuable insight into production problems on specific jobs and how to solve them, and a knowledge of the foundry's standards of operation, inspection and supervision.

Conversely, the foundryman or his representative should be encouraged to visit the buyer's plant. This is where he can best learn the practical answers pertaining to end use requirements and specified quality. Many times he will find that requirements which seem unimportant to him are actually critical in nature.

For example, our castings are used in hydraulic applications. Our designs have been developed to the point where many valve holes have been cored into the cylinder to eliminate the need for additional valve castings. It also enables us to eliminate a considerable amount of exterior piping and valving to carry the flow of oil. On the other hand, we have aggravated the casting problem, particularly with respect to clean cored holes which carry the flow of oil. Fins and burned-in sand are highly objectionable, because if particles are carried on into the system, they can affect the performance

of a pump by scoring the piston hole walls in the cast iron cylinder. To one not acquainted with this problem, it would appear that we are super-critical in this respect. We welcome the opportunity to explain the harmful effect of the defects in coring, as well as our other special quality requirements.

The buyer should also be on guard against the "over-selling" of some new foundry developments. In recent years we have heard much about nodular or ductile iron. This material has its place in the field and, when properly evaluated, it does a good job. However, in the early years it was presented by many over-enthusiastic people as the material to cure all ills. It is possible that this was true, but it involved considerable extra cost, oftentimes unnecessary. It was our feeling, and still is, that a job which is causing trouble should first be studied from the standpoint of engineering errors. Often these can be corrected, leaving the job in gray iron at much lower cost. When re-engineering will not correct the fault, a premium price is in order, and then a material such as ductile iron or steel can be considered. Ductile iron has helped us, and we expect that it will

Of utmost importance is the establishing of a closer working knowledge and understanding between buyer and seller. If we are to meet the ever increasing demands for improved quality and performance in the products we manufacture, we must depend heavily on the knowledge and skill of the foundryman. We must understand his problems and enlist his aid in solving ours. We must strengthen his knowledge and awareness of our end use and quality and cost requirements. as the means toward a sound, cooperative working basis for the benefit of both vendor and buyer.

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continue to do so.

Validity of Restrictive Contracts

(Continued from page 126)

to a purchaser who suffered injury or financial loss resulting from negligence of all these parties.

Another important point of law involves the right of a purchaser to sue and recover damages from a retail seller who gave no guarantee on the product, whereas the manufacturer himself gave a guarantee. The courts hold that always a retail dealer is liable on an implied guar-

(Please turn to page 352)

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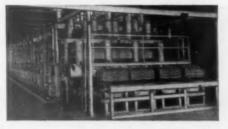
How to Select the Most Economical Insulating Firebrick

The advantages of lightweight insulating firebrick over ordinary "heavyweight" firebrick are generally known to furnace operators and furnace builders. But many buyers have wondered just what advantages there might be in one brand of insulating firebrick as against another. The answer to this question could very well mean savings in fuel costs, increased furnace output, longer life . . . or all three.

One furnace builder ran tests on their small electric kilns where heat input could be measured with great accuracy. Here's what they found: B&W IFB required 25% less heat than any other brand of insulating firebrick they tried.

The reason? B&W IFB are lighter in weight than any other insulating fire-brick — they contain more tiny, insulating air cells. Heavier, denser insulating firebrick linings waste fuel two ways: They soak up and store more heat which is lost when the furnace is cooled; and they conduct more heat through the walls.

How about long life? One of the



toughest tests of firebrick is in the lining of a carbon monoxide furnace. Some brands last only a few weeks, then disintegrate, due to iron oxide impurities in the brick which react with the gas.

But B&W Insulating Firebrick contain little iron oxide, and they're processed at high temperatures so that any traces of iron oxide form stable compounds. So instead of deteriorating they stay on the job year after year—in many cases over 10 years.

Another factor, important to many furnace operators, is accurate temperature control. Here again B&W IFB have an advantage over other insulating firebrick. First, because B&W IFB are lighter in weight they store and conduct less heat—and they respond more quickly to changes in heat input.

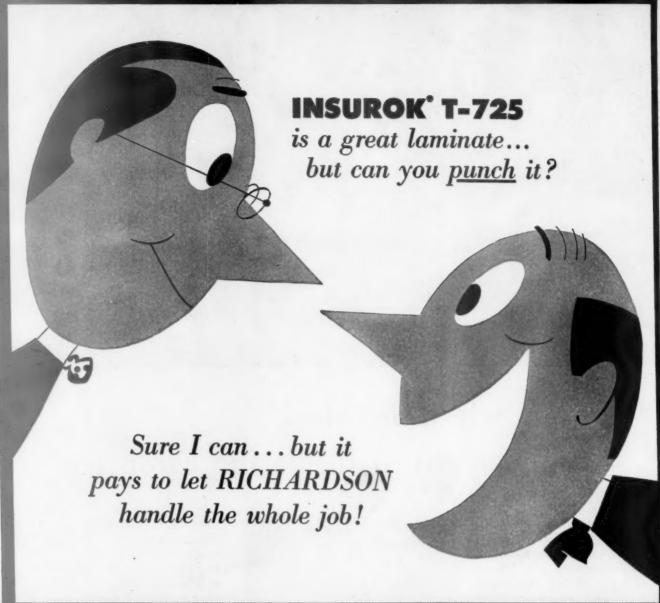
A typical example is the giant stressrelieving furnace shown below—sixty feet by twenty-two feet by seventeen feet high. The B&W lining plays a vital part in holding the desired temperature within 5 degrees accuracy!



Next time you buy or specify insulating firebrick, remember that the lightest weight brick of all—B&W—has the highest insulation value, the longest life and the greatest furnace heat controllability.

THE BABCOCK & WILCOX CO.

Refractories Division
General Offices:
161 East 42nd St., New York 17, N. Y.
Works: Augusta, Ga.



If you are having difficulty punching laminated parts, why not turn the job over to Richardson? You'll save the expense of excessive spoilage, enjoy excellent workmanship, and eliminate the need for maintaining your own production facilities. Richardson has the skilled personnel, the knowledge of punching techniques, and the equipment to fabricate the laminated plastics part you need, in any volume. Find out how easy and economical it is to let Richardson take over the fabrication of your electrical parts, or have their experienced engineers assist you in your design problems. Phone or write Richardson, today!

SALES OFFICES IN PRINCIPAL CITIES

The RICHARDSON COMPANY

FOUNDED 1858

2791 Lake Street, Meirose Park, Illinois (Chicago District)



YOU'RE ALWAYS NEAR a SEAL MASTER Distributor!



For More Information Circle No. 467 on Inquiry Card-Page 17



The **responsibility** of being a leader

The United States Gasket Company is the recognized leader in the fabrication and application of the "wonder plastics", duPont Teflon and Kellogg's Kel-F—leadership earned through many years of pioneering.

The responsibility of this leadership is acutely recognized

The responsibility of this leadership is acutely recognized by the progressive management of this company and is apparent in its three essential activities.

m its timee essential activities.

1. Continued engineering research

Three highly specialized engineering laboratories are maintained—chemical, electronic and physical—engineering which continues to produce most of the advanced ideas and practices in the application of these plastics to commercial, A.E.C., and military requirements.

2. Quality controlled production

The most modern facilities for rapid, low cost quality production—many machines and equipment designed by our own engineering department.

3. Engineering Sales Service, everywhere

Representatives of the United States Gasket Company are located in all principal cities here and abroad. These men are factory-trained and are ready to translate your problems into satisfactory solutions with U.S.G. products—either at the moment, or drawing upon the wealth of specialized knowledge of the home office.

Write for twenty page Brochure "Inside U.S.G."

UNITED STATES GASKET COMPANY PRODUCTS INCLUDE—Chemically impervious gaskets, packing and expansion joints • High voltage, high frequency, high temperature insulating materials • TEFLON alloys • No-lubricant, non-contaminating bearings and bushings • Chemical-proof pump impellers and parts • Electronic components and electro-mechanical assemblies • Cementable TEFLON • Solderable TEFLON • Perforated TEFLON and KEL-F discs and Raschig rings for chemical towers • TEFLON-faced guide rails, work surfaces, hoppers • TEFLON pipe liners • Chemical resistant mechanical seals, etc.



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Validity of Restrictive Contracts

(Continued from page 346)

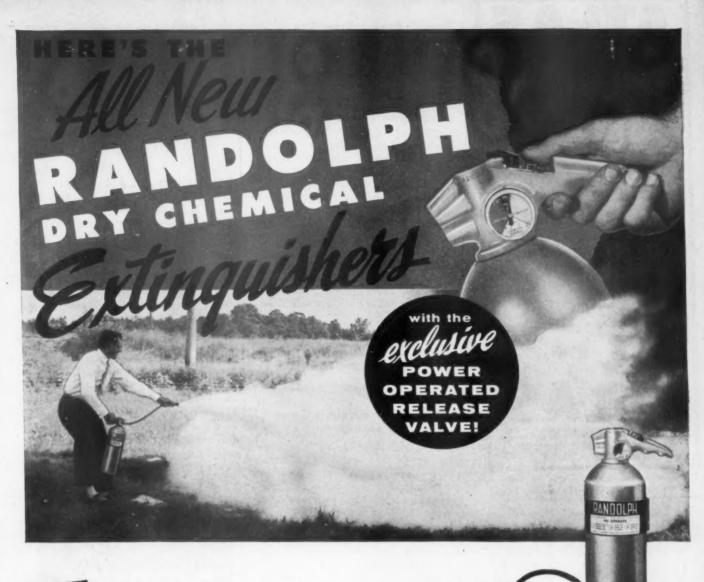
antee that merchandise is worth the reasonable price at which it is sold, unless a clause in the contract clearly states that the seller will not be liable on a guarantee. Therefore, whether or not the retail dealer gives the purchaser a guarantee, he may be liable if the merchandise proves to be worth less than the purchase price, or is not fit for the intended purposes of the purchaser. And this is so although the manufacturer gave the purchaser a written guarantee.

In other words, the manufacturer may give the purchaser a valid and good guarantee and yet the retail seller may be held liable to the purchaser on a breached implied guarantee, although the manufacturer refuses to fulfill the terms of his guarantee. Morever the fact that the purchaser sued or otherwise endeavored to compel the manufacturer to comply with the terms of his guarantee will not forfeit the right of the purchaser, in the end, to sue and recover damages from the retail dealer.

Of course, some higher courts have held that a retail dealer may avoid his normal liability on an implied guarantee where he sells goods pre-packed by the manufacturer, and the retailer states to the purchaser that he will not guarantee the quality of the merchandise. The same release from liability on the part of the retailer is effective if the testimony shows that he in some other manner put the purchaser on his guard that the manufacturer assumed full and exclusive liability and responsibility that the merchandise was not defective, or would prove satisfactory and reasonably worth the purchase price.

Cutting Band Saw Trims, Contours Wide Range of Metals

A two-speed metal cutting band saw makes quick work of trimming and contour sawing a wide range of metals. It cuts to the center of a 24" circle. It has a capacity of 61/4" above the 14" x 14" tilting table and two blade speeds of 100 and 250 fpm. The speed reducer is driven by V-belt from motor, and power is transferred to the saw through two sets of hardened sprocket wheels and roller chains. Saw wheels turn on sealed-for-life bearings. It is made by Atlas Press Co., N. Pitcher St., Kalamazoo, Mich.



... Power Valve: Like the power steering in your automobile, the new Randolph Extinguishers provide "finger-touch" operation.

Cylinder pressure does the heavy work of opening main release valve

—gives instant surging power or instant positive re-sealing.

... Randolph Color Dial: No more wondering! One glance tells you whether the extinguisher is fully charged, partially charged or fully discharged.

... 500 Pound Power and Range: A full 500 pounds of pressure drives the powder farther, gives the fire fighter a 20 to 30 foot range—cold weather or hot!

... Push Button Release with "swing-aside" Button Guard! Solid brass cap protects button-trigger. Just flick to right or left and touch the button. Panic-proof, fast!

All Models Underwriters' Approved

Get all the facts on this great new development in fire fighting technique...the extinguisher *everyone* is talking about! Write for the new Randolph Catalog today!

RANDOLPH LABORATORIES, INC.

foremost producers of simplified fire protection equipment

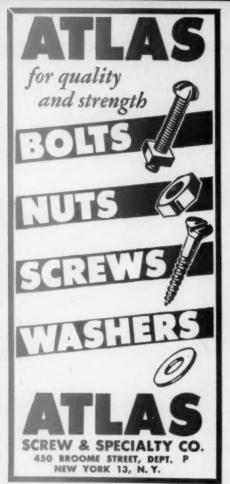
7 E. Kinzie St., Chicago 10, III.

In Canada: Randolph Western, Ltd., Toronto, Ontario

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"L-30"

*L-12"



For More Information Circle No. 470 on Inquiry Card—Page 17



Longer Protection Life

- Chain Link fabric galvanized after weaving
- Improved welded gates and locking devices
- Extra post and rail ties
- · Heavy post caps and barb arms
- · H-Section line posts 15% heavier
- Engineered construction

Continental Steel Corp. Kokomo, Indiana	Carrier 1 and
Please send FREE copy of tection"—complete manual protection.	"Planned Pro-
Name	
Address	
City	State

CONTINENTAL

For More Information Circle No. 471 on Inquiry Card—Page 17

Buying From The Distributor

(Continued from page 110)

relieves the industrial buyer of a number of costly, time-consuming operations. In a sense, he provides a centralized purchasing service for a number of products more efficiently and at less expense than the purchasing agent could by dealing directly with the several manufacturers. Many routine purchasing functions can be delegated to wholesalers, who are already set up to handle them.

Items that are difficult to get, and those for which there is only intermittent demand are always purchasing problems. The local wholesaler will stock these difficult-to-purchase items, at no additional cost, when the demand is made known, and becomes a convenient source of supply. Extra time is thus available to purchasing people by the elimination of delays, particularly for material used in production.

Distributor Excels in Good Service

Wholesaler distribution also permits us to add an item of great value—service. Good service is the one commodity in which the distributor excels. If the user can't get service, it can cost him dearly. A badly needed item does him no good if it is not in the right place at the right time. So, the manufacturer and the user both have a stake in the wholesaler. He gets the goods where they are needed quickly and economically.

C. E. Read, director of procurement for Republic Aviation, has put the point neatly. "Our local distributors," he says, "are expeditors par excellence, and without them our procurement tasks would be impossible to perform."

Another interesting comment on the wholesaler came from the purchasing agent of a power company. He said that the distributor helped reduce the time spent interviewing salesmen by 40%. Wholesaler stocks also saved his company \$5,500 annually in interest charges on inventory investment. Other savings are possible when wholesalers carry special items on an emergency basis to tide over a customer waiting for a manufacturer's shipment.

During World War II the logic of our wholesaler policy was questioned by the federal government because we did not sell directly to the armed forces. Each of the services asked us to defend the policy. We had to show that our distributors saved us money, which in turn permitted us to reduce our prices to them. We proved our case without exception, and were allowed to maintain our marketing policy in its entirety.

Commodity Infringement

(Continued from page 81)

accused of infringing knew it had been so used and still continued to manufacture and sell it, and that he fitted it for such use, are competent evidence of such an intention or purpose.

Capable of Rightful and Innocent Use

"But the mere fact that it is capable of such a use, when it is at the same time capable or fitted for a rightful and innocent use, is not sufficient to establish an intention or purpose where the machine and its parts were expressly fitted for use in a rightful way without aiding in any such infringement, and there is no evidence that the party charged with the infringement ever knew of the use of the machine or that it was ever sold or used, in such a way as to aid others in infringing the patented invention."

(Please turn to page 360)



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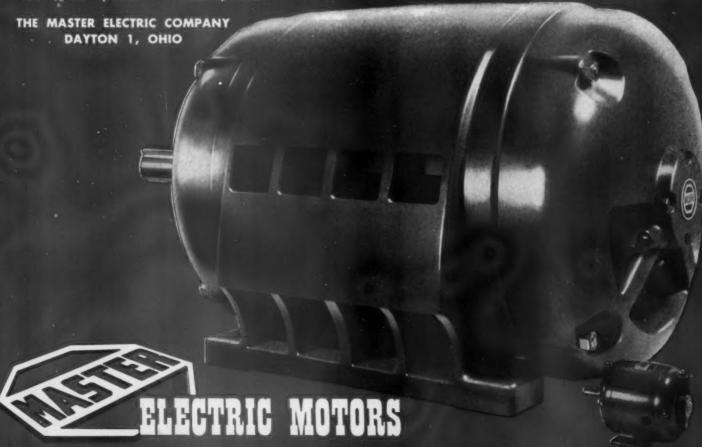
Squirrel cage motors, slip ring motors, synchronous motors, repulsion induction motors, capacitor motors, direct current motors... open, enclosed, splash-proof, fan-cooled, explosion-proof... horizontal or vertical... for all phases, voltages and frequencies... in single speed, multi-speed and variable speed types... with or without flanges or other special features... with 5 types of gear reduction up to 432 to 1 ratio... with electric brakes... with mechanical and electronically-controlled variable speed units... with fluid drives... and for every type of mounting... Master has them all and so can be completely impartial in helping you select the one best motor drive for YOU.

And all of these, the electric motors . . . the electric brakes the fluid drives . . . the gear reduction units . . . the variable speed drives . . . all are designed so they can be easily combined together to give you the RIGHT horsepower, the RIGHT shaft speed, the RIGHT mounting features in one compact power drive.

That's the horsesense way to use horsepower whether you want 1/8 horsepower or 400 horsepower.

1/8 TO 400

HORSEPOWER





Does your advertising go in the front door, too?

The facts on "backdoor" selling are simple. And important. A majority of large firms with centralized purchasing departments discourage it. A great many forbid it. And about 75% admit to prejudice against the vendor using it.*

That's why most sales executives advise their salesmen to "See the Purchasing Agent first."

Now here's an important question for you to consider: Shouldn't your advertising go in the front door, too... and "see the PA first"?

PURCHASING Magazine has been recognized as the PA's own magazine since 1915... gives you the largest available coverage of industrial purchasing executives.

*Data on request

If you sell an industrial product . . .

put PURCHASING power behind it!

PURCHASING MAGAZINE

205 East 42nd Street, New York 17, N.Y.

The basic magazine on any industrial advertising schedule!









CONOVER - MAST PUBLICATION



CRUCIBLE

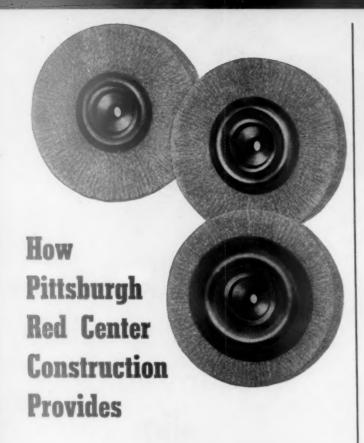
first name in special purpose steels

54 years of Fine steelmaking

WAREHOUSE SERVICE

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

Branch Offices and Warehouses: ATLANTA • BALTIMORE • BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DAYTON
DENVER • DETROIT • HOUSTON • INDIANAPOLIS • LOS ANGELES • MILWAUKEE • NEWARK • NEW HAVEN • NEW YORK • PHILADELPHIA • PITTSBURGH
PROVIDENCE • ROCKFORD • SAN FRANCISCO • SEATTLE • SPRINGFIELD, MASS. • ST. LOUIS • ST. PAUL • SYRACUSE • TORONTO, ONT. • WASHINGTON, D. C.



Faster cutting while maintaining smooth finish • Freedom from shedding • Perfect balance • Longer life

In conventional brushes, when faster cutting action is desired, coarser wire is used. But increasing the wire gauge causes brittleness, destroying the wearing quality of the brush, and resulting in excessive scoring of the work.

Pittsburgh has solved this problem by maintaining the same ideal gauge wire in every brush, but increasing the fill and diameter of the hub and center plate of brushes designed for faster cutting. Thus, although cutting speed is increased, work remains unscored and the wire does not lose its inherent power to flex. These Red Center brushes last longer, maintain perfect balance throughout life, and do a better job all around.

This is just one example of superior Pittsburgh construction, engineered for both general and specific applications. For details of the complete line, write for free Catalog #54-W. Address: PITTSBURGH PLATE GLASS Co., Brush Div., Dept. L11, 3221 Frederick Ave., Baltimore 29, Maryland.

PITTSBURGH



BRUSHES . PAINTS . GLASS . CHEMICALS . PLASTICS . FIBER GLASS

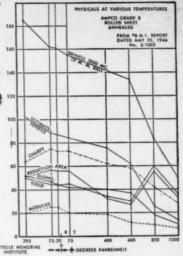
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

For More Information Circle No. 475 on Inquiry Card-Page 17

Get toughness, ductility, and exceptional wear-resistance in critical parts

USE
AMPCO* METAL
GRADE 8
SHEET AND PLATE



Build maximum life into gibs, guides, wear plates, slides, and other critical parts that must fight wear and abuse. Make them from Ampco Metal Grade 8 Sheet or Plate. Grade 8 gives you high physicals plus toughness and ductility. And you get exceptional resistance to all forms of wear that shorten machine-life — plus unusual resistance to impact and fatigue.

Grade 8 sheet is available from stock in 1/32" to 1/8" thicknesses — plate from 3/16" to 3". Write for complete specifications and information today, including name of the nearest distributor.

*Reg. U. S. Pat. Off.



Ampco Metal, Inc. Dept. P-11 • Milwaukee 46, Wisconsin West Coast Plant • Burbank, California

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For More Information Circle No. 477 on Inquiry Card—Page 17
For More Information Circle No. 478
on Inquiry Card—Page 17→

North, South, East, West:

THERE'S AN H&H REPRESENTATIVE NEAR YOU

Detroit Michigan 1018 Fisher Bldg. Trinity 3-1295 Racine
Wisconsin
P.O. Box 214
Tel. 4-2320

Grand Rapids

Michigan

No. 6

Monument Square Bldg.

Glendale 4-8606

Wethersfield
Connecticut
435 Ridge Rd.
Hartford 9-1264

Chicago Illinois 5306 W. Lawrence Ave Spring 71662

Illinois
Representative

Los Angeles California 777 Stanford Ave Van Dyke 2082 Cleveland
Ohio
Box 775
Washington 1-4345

Chicago
Illinois
332 Michigan Blvd.
Wabash 2-5678
Indiana
Representative

Akron New York Main Road Akron 2338 Dayton
Ohio
410 W. First St.
Hemlock 1732

St. Paul
Minnesota
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Wichita Kansas 335 N. Waco Ave. Forest 3-3297

MOTES to areas not serviced by board offices call Vicerous 2-2500 M

Expect the BEST brass and copper products from

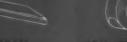
H&H Tube

AND MANUFACTURING COMPANY

269 N. Forman Avenue, Detroit 17, Michigan . Offices from Coast to Coast













COIL STRIP AND SEAMLESS TUBIN



Your trademark and brand names are symbols of consistent high product quality. When prominently and appealingly displayed on your products, they are confidence-building assets that improve competitive position in today's brand-conscious market.

Meyercord Nameplate Decals identify and help move all types of products faster across your dealer's counter and out of his stockrooms-with trademarks that are attractive, colorful, uniform, legible, and durable. Applied speedily and economically on your present assembly-line . . . for long or short runs.

Our special staff of skilled artists, photographers, typographers, color experts, and merchandisingadvertising counsellors are ready to help you establish a strong selling identification for your product ... at minimum cost per unit. This is another of Meyercord's complete and continuous services to industry. Let a highly-trained Meyercord Decal engineer show you how to add sales appeal to your product, while cutting nameplate costs.



FREE! "MARK-IT" MANUAL OF DECAL NAMEPLATES

Send today, on your company letterhead, for this valuable full-color guide to every industrial problem in marking, identification, instruction, and information. Gives you hundreds of new ideas for the application of decals to your products.

EYERCORD CO World's Largest Decalcomania Manufacturers

DEPT. B-302, 5323 WEST LAKE STREET - CHICAGO 44, ILLINOIS

For More Information Circle No. 479 on Inquiry Card-Page 17



For More Information Circle No. 480 on Inquiry Card-Page 17

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCU-LATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MAR 3, 1933 Of Purchasing, published monthly at Orange, Conn. for November 1, 1954. State of New York State of

County of New York

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Ray Richards, who, having been duly sworn
according to law, deposed and says that he is the Assistant Publisher of
the magazine "Purchasing" and that the following is, to the best of his
knowledge and belief, a true statement of the ownership, management
(and if a daily paper, the circulation), etc., of the aforesaid publication
for the date shown in the above caption, required by the Act of August
24, 1912, as amended by the Act of March 3, 1933, embodied in section 537 Postal Laws and Regulations, printed on the reverse of this
form, to wit:

for the date shown in the above caption, required by the Act of March 3, 1933, embodied in section 537 Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

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2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and addresses, as well as those of each individual member, must be given).

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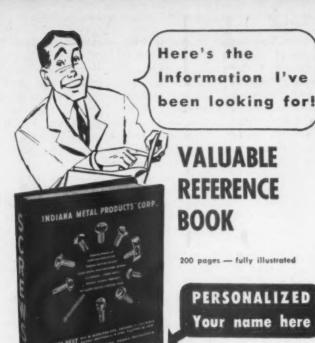
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Notary Public

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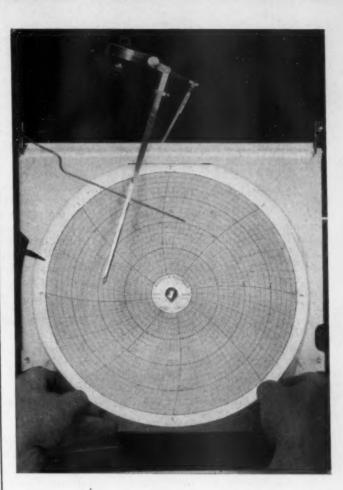
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Commodity Infringement

(Continued from page 352)

A patent known as the Berliner Gramaphone patent was issued over eighty years ago, covering a traveling table carrying a sound record and a reproducing stylus, which was subsequently acquired by the Victor Talking Machine Company.

Accessories Are Included

After this patent was issued, a manufacturer placed on the market what it termed a "feed device machine" with disc records adapted for use not only on this feed device machine but on the Victor machine, for which these disc records were equally suitable.

An injunction was granted in the suit brought by the Victor Talking Machine Company against the manufacturer of these records. The injunction was ignored, and in its decision of an application to punish the infringer for contempt the Federal Court said:

"This company has manufactured and sold the records with the intent that they should be used in combination with the other elements. Indeed, it is difficult to escape the conviction that the larger part of the company's sales were contrived by it to enable the owners of reproducers purchased from the Victor Talking Machine Company, to produce such musical pieces as such owners might desire to hear through the cooperation in combination with such reproducers, of records made by this infringer, instead of records made by the owner of the patent. This seems to be a case of contributory infringement - an entirely voluntary and intentional one."

In the affirmance of this decision the Federal appellate court made the further comment:

"This company knew and sold its records with the knowledge that, if its output was to be used at all by the public, it would be used by the Victor Machine and in the combination protected by the claims of the Berliner patent. It is clear that this company has made and sold a single element of the Berliner patent with the intent that it should be united to the other elements and complete the combination and this is infringement."

Replacement Parts

From that decision a further appeal was taken to the United States Supreme Court. The manufacturer of these infringing disc records con-

tended that the owner of a patented device has the legal right to purchase from another unpatented elements for replacement, and that such a replacement is not a reconstruction of the patented combination, but within the rights of the purchaser and not an infringement.

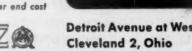
"The question in the case, therefore, is single and direct," said the Supreme Court in sustaining the decisions of the lower courts. "Its solution depends upon the application of some rudimentary principles of the patent law. A combination is a composition of elements, some of which may be old and others new, or all old or all new. It is however, the combination that is the invention and is as much a unit in contemplation of law as a single or noncomposite instrument. Whoever uses it without permission is an infringer of it. Whoever contributes to such use is an infringer of it."

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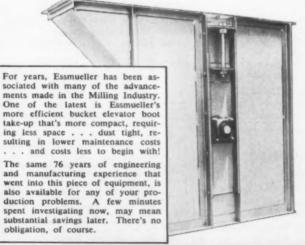
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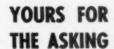
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"Booking" Permits More Complex Parts to Be Made by Frozen Mercury Investment Casting

The design of parts possessing far greater complexities is now possible through the frozen mercury process of investment casting because of an important feature known as "booking". This feature permits two or more pieces of frozen mercury to be almost instantly joined with only the slightest pressure.

Accordingly, complex patterns possessing interior coring and gating as intricate as to make them impossible or impractical by other methods, can be easily and economically produced by the frozen

mercury process.

To accomplish this, the original die may be made in two identical halves, separated as a completed unit by a match-plate that is perfectly smooth on both sides. The two halves are linked with dowel pins extending through the match-plate.

Liquid mercury is poured into the two die halves. When the material is frozen, the die is opened and the match-plate removed. Then, the two sides of the die, aligned by dowels, are placed together, bringing the opposing smooth surfaces of the two halves of the frozen mercury pattern into a perfect face-to-face contact.

When the halves are in contact, a slight squeeze or a gentle tapping against the die is sufficient to cause the frozen mercury to weld its surfaces to unite the two halves into a single monolithic pattern.

"Booking" is not limited to the joining of two frozen sections only: rather, patterns have been made with as many as twelve separate "booking" operations. Thus, singleunit finished castings possessing amazing complexities are easily possible and practical-far beyond the potentialities of any other process.

Because of the large and intricate castings that can be produced. additional cost savings are available since entire assemblies can be purchased as a single unit. Accordingly, savings are realized through the elimination of assembly operations. greatly reduced inventories of many individual parts and the elimination or major reduction of required subsequent machining.

Tool Steel Supplier Adopts SAE Classification System

Because it considers the present system of brand name selling of tool steels as obsolete, Solar Steel Corporation will convert to the "accurate symbol classification system established by the Society of Automotive Engineers."

Solar's announcement said brand name ordering results in chopping up orders into small lots, creates extra paperwork, wastes time and money and weakens industry's purchasing function. It pointed out that a tool steel user who has been ordering a dozen different brand names falling into a single SAE category can instead order by one symbol, such as SAE 01.

Herman Rittger, Solar general manager of tool steel sales, said: "The most efficient and economical way to buy industrial products is through the purchasing department. What justification can be found for brand name selling of tool steels when it deliberately bypasses the purchasing department. Such an air of technical mystery has been injected into tool steel buying by brand name salesmen that the purchasing agent has been forced to rely on production men to detail their brand name needs."

Using the SAE system, shop men and engineering departments can now requisition their tool steel simply and efficiently, said Mr. Rittger. "The purchasing department can then buy price, value, and service instead of meaningless brand names. The need for piecemeal

orders is obviated."

Mr. Rittger explained that SAE had classified tool steels into six major classes: Water Hardening; Shock Resisting; Cold Work; Hot Work; High Speed; Special Purpose. These six classes are broken up into subtypes by letter and numeral. SAE has ranked together many brand names into a small group.

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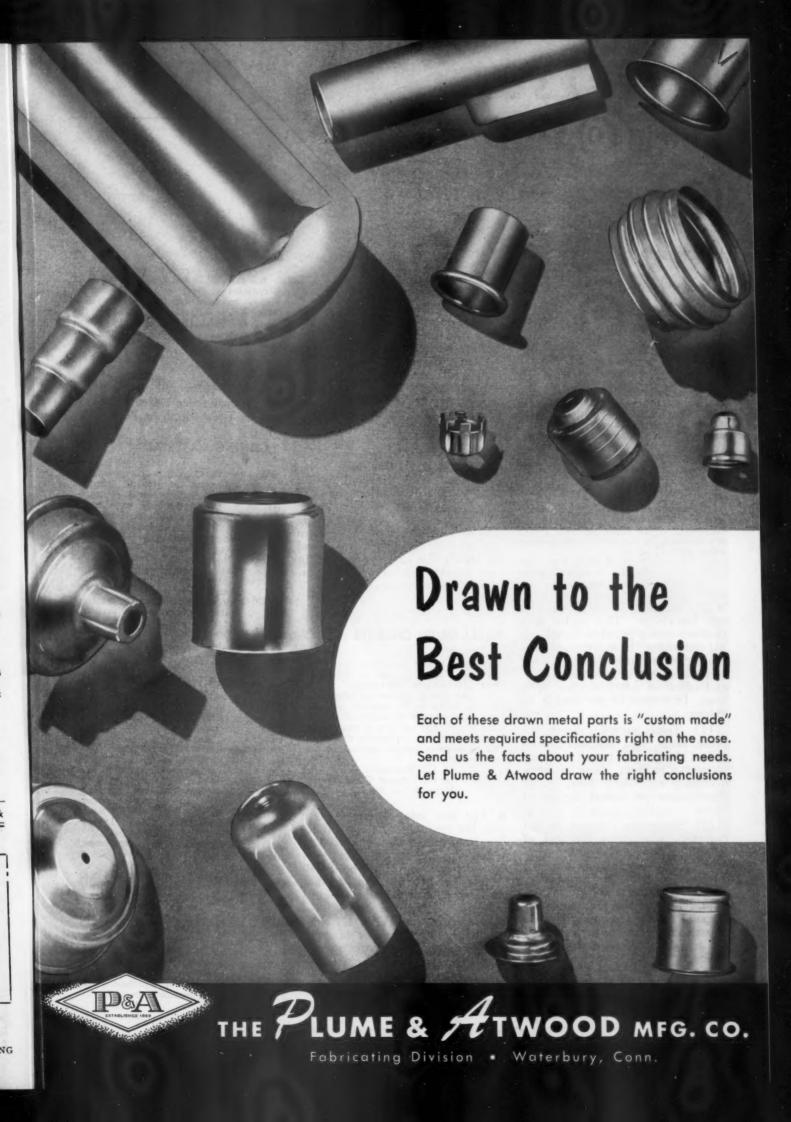
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PURCHASE ORDER COST

Your article "How Serious Is the Small Order Problem?" (August issue, p. 75) met with considerable interest in this since it deals with a problem that has plagued us constantly.

Question No. 4, however, needs some clarification. Only 27% of the firms answering the questionnaire had "accurate" knowledge of the cost of issuing a purchase order. Probably the other 73%, like ourselves, wonder whether there is a standard formula for computing the a standard formula for computing this cost. We would very much appreciate answers to the following questions if the information is available:

(1) What factors are considered in arriving at a total cost of the purchas-

ing effort?
(2) Can storeroom expense, or any fraction thereof, be legitimately in-

(3) Is there not likely to be a decrease in efficiency in the small purchasing office where three or four people are involved, in comparison to the large office with 15 or 20?

D. H. Wattles, Pur. Agt.

Apache Powder Company Benson, Arizona

- No standard formula exists, to our knowledge. This varies with cost accounting practices in individ-ual companies. In many cases, purchasing department expense is not segregated, but is included in general office or administrative overhead. In respect to the specific in-
- Total payroll; direct expense items, e.g., stationery, tele-phone, telegraph, travel, expense accounts; pro-rata share of office overhead, e.g., light, heat, space; depreciation on capital equipment items.
- (2) Storeroom expense is not properly included in the cost of issuing an order. In many companies, stores operations do not come under purchasing jurisdiction. In any case, it is better practice to segregate buying and stores for purposes of cost accounting because of basic differences in the nature of the operations, facilities used, and personnel involved. Administrative salaries can be prorated whenever one person gives time to both functions.
 - (3) Our survey of September,

1950 tends to support this view in respect to total purchasing cost measured against dollar volume of purchases. In purchasing, as in most operations, there are economies in volume operation. This may be due in part to generally higher quantities per transaction, resulting in lower unit purchase cost, and to the possibility of greater specialization in work assignments, with routine duties handled by less expensive types of personnel. It is offset in some degree by the assumption of more staff activities (e.g., research and analysis) in the larger department, whereas such activities may be neglected or dispensed with by the smaller staff due to limitations of time and manpower.

In respect to cost of issuing orders, however, no such pattern appears in the 1950 survey, and the wide range of costs reported in each volume bracket makes it impossible to generalize.—Ed.

SMALL ORDER CHARGES

Recently I saw your very interesting report on "How Serious Is the Small Order Problem in Purchasing?"

We are trying to develop information on how common the practice is to set a minimum amount for orders or to make a flat charge for handling a small order.

Do you have any information that would us a cross section opinion on this question?

O. C. Hognander, Vice Pres. G. H. Tennant Company Minneapolis, Minn.

The best information we have seen on the subject of small orders from the seller's point of view is contained in the Study in Business Policy, No. 21, "The Small Order—Asset or Liability", compiled and published by the National Industrial Conference Board, 247 Park Avenue, New York 17, N.Y. In this study, a number of companies indicate how they set a minimum order point or charge a differential for orders below a certain amount. The booklet is available from N.I.C.B. at 50 cents a copy.

20 WAYS

On page 29 in the September issue of PURCHASING, there is an item describ-ing a brochure entitled "20 Ways to More Efficient Purchasing", issued by the National Sales Executives. Will you please advise the address of this organization.

H. S. Johnson, Adm. Mgr. Procurement Division Motorola Inc. Chicago, Ill.

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Douglas V. Smith
Purchasing Training Supervisor Materials Services Division
General Electric Company

General Electric Company Schenectady, N. Y.

Permission granted.—Ed.

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want to compliment you on the wonderful contribution you are making to the purchasing profession through PURCHASING Magazine.

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B. M.

Smarr, Dir. of Pur. Avco Manufacturing Corp. Cincinnati, Ohio

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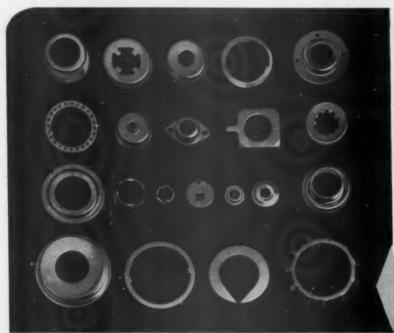


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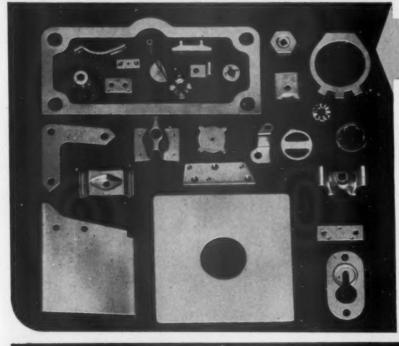




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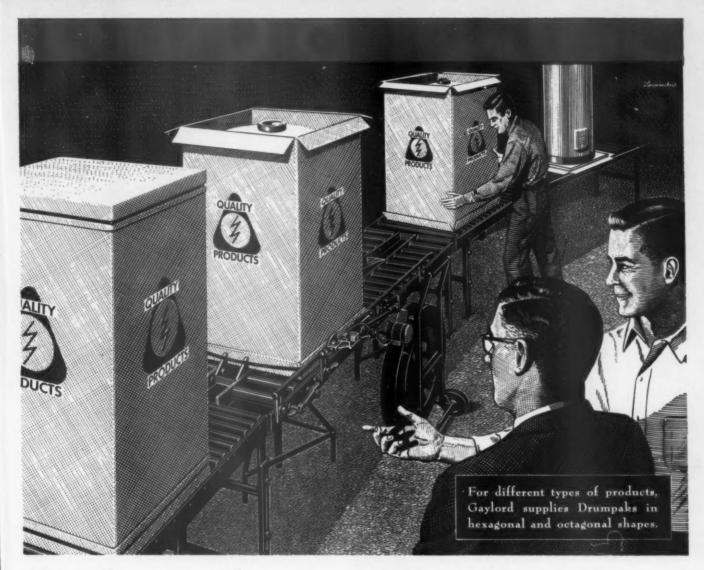
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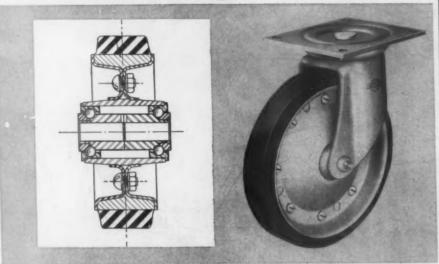
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MATERIALS-HANDLING NE

Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment

Improved rubber-tire caster handles high-shock loads



Unit design of bearings permits easy handling of bearing assembly when disassembling wheel. Bearings cannot be preloaded or misaligned in mounting wheel.

Rubber-tired disc wheels and double ball-bearing hubs feature new design innovations. Easy to disassemble; replaceable tire, disc and bearing assembly.

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- 1. File-hard (15N90 Rockwell hardness) bearing surfaces provide longer wear and service life, precluding premature failure.
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- 4. Unit bearings can't fall apart when disassembling wheel.
- 5. Completely replaceable tires, discs and unit bearings.

SERIES H99 swivel caster with demountable rubber tire, double-ball-bearing action for easy swiveling. 5" and 8" wheel diameters; loads, 250 and 350 lbs. each.





IES H68 swivel caster. case-hardened (15N90 kwell) bearing surfaces extra wear (as in H99).

- 6. Electroplated steel discs, bolts, lock washers, nuts have zinc or cadmium finish to resist corrosion — superior to paint.
- 7. High-tensile rubber treads vulcanized on hard non-stretching tread base.
- 8. Alemite lubrication fittings are standard, except on milk case dolly casters, which have flush-type lubricators.

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You get extra service from Bassick steel casters case-hardened to 15N90 Rockwell hardness - even a file can't cut raceway

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Wheels within wheels

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